Managing Insomnia in your Practice

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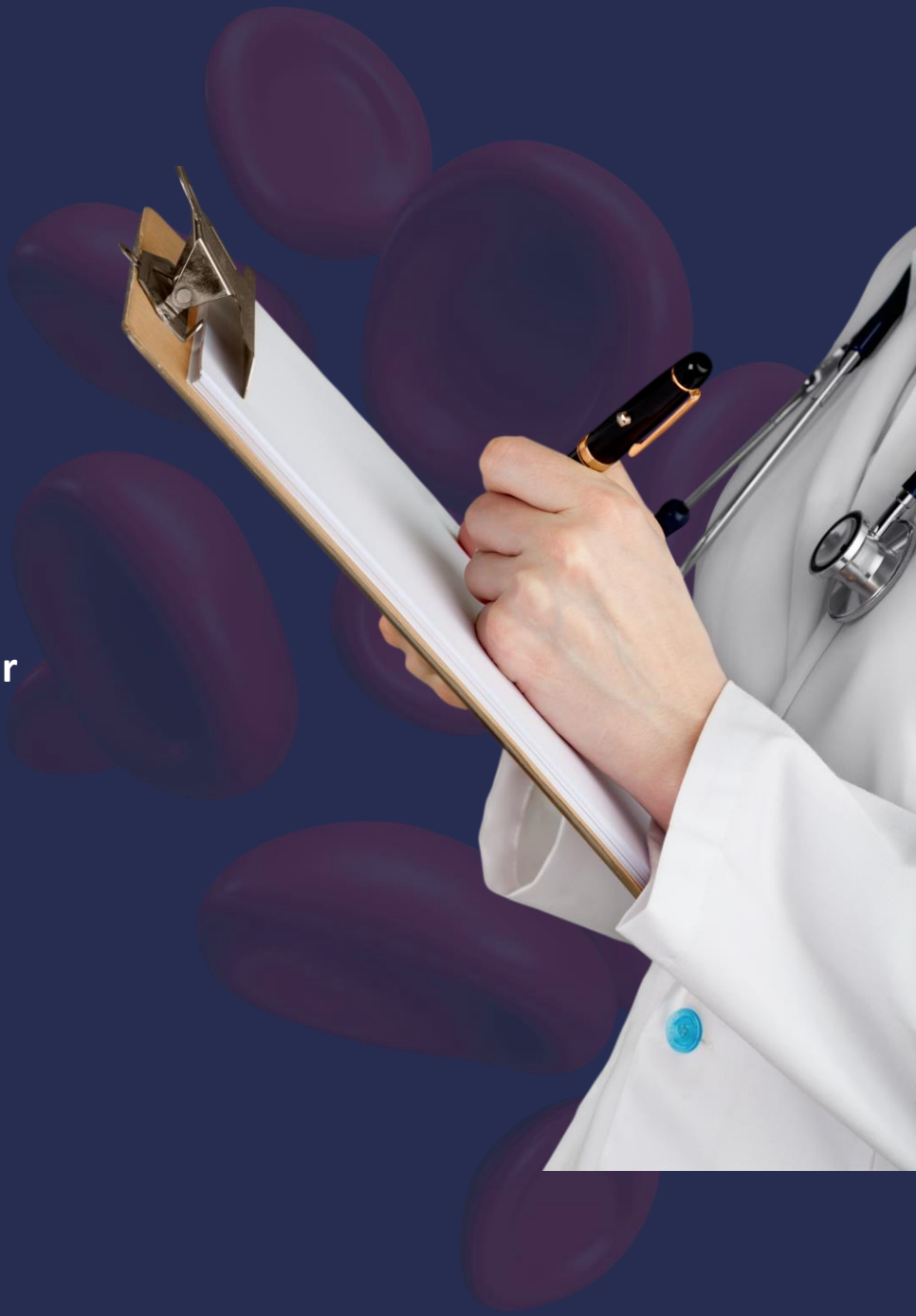
PRESENTER DISCLOSURE

Nick Kates

I do not have an financial relationships or other relationships to declare



Plan for Today

- Why sleep is so important
- The processes that affect our sleep
- Sleep Quality
- Assessing Insomnia
- Treating Insomnia, including CBTi

What is sleep?

Sleep is a dynamic and regulated set of behavioral and physiological states during which many processes vital to health and well-being take place.

- Learning and memory consolidation
- Balance ghrelin and leptin production
- Helps regulate insulin metabolism
- Promotes healing of some body structures
- Boosts the immune system
- Reduces cortisol levels
- Cleansing of beta-amyloid proteins associated with Alzheimer's
- Healthy brain development
- Protects against many chronic conditions

Sleep is an active and essential process

How much sleep do we need

- Average is 7-9 hours – Great variation – Minimum 6 hours
- Almost 60% of adults report not getting enough sleep.
- 16% report chronic insomnia
- 40% report daytime drowsiness
- 85% of teens get less than the minimum (8 hours)
- 28% of kids under 10 don't get enough sleep (10 hours)
- 28% of us use something to help them sleep (14% meds)
- Getting less sleep by the year (sleep was originally driven just by natural light / dark)
- 51 Different genetic markers predicting sleep problems

National Sleep Foundation

RECOMMENDED SLEEP DURATIONS

HOURS OF SLEEP

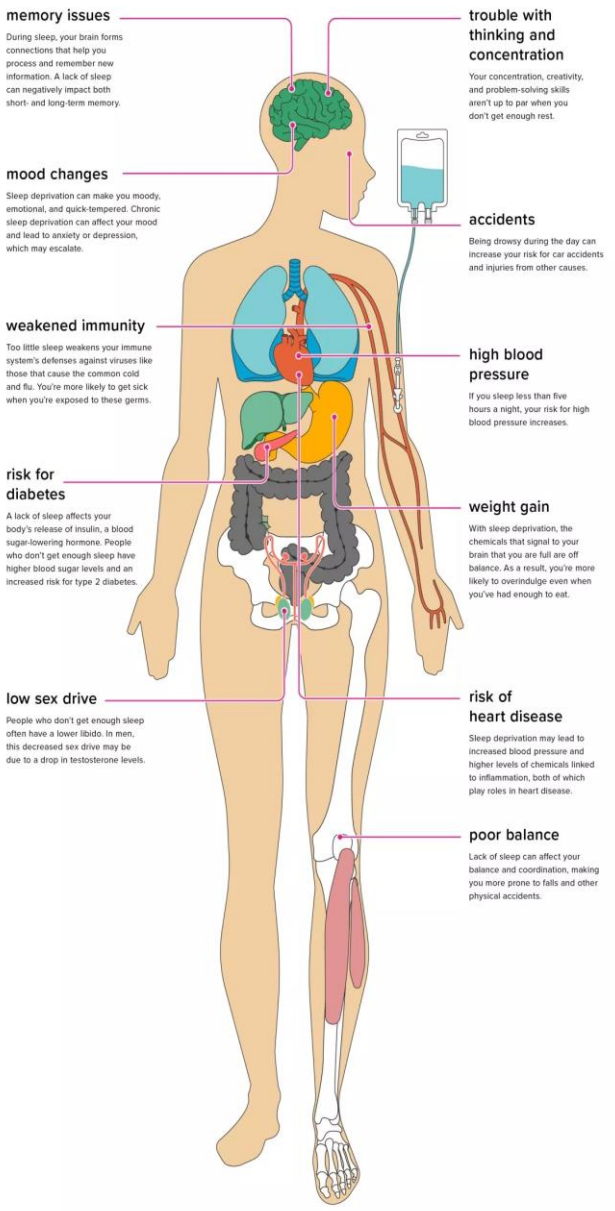
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
OLDER ADULT ≥ 65 Years																					
ADULT 26–64 Years																					
YOUNG ADULT 18–25 Years																					
TEENAGER 14–17 Years																					
SCHOOL AGE 6–13 Years																					
PRESCHOOL 3–5 Years																					
TODDLER 1–2 Years																					
INFANT 4–11 Months																					
NEWBORN 0–3 Months																					

Recommended Range | May Be Appropriate | Not Recommended

Consequences of insufficient sleep

Health Consequences of Inadequate or Poor Sleep

- Diabetes (night owls)
- Obesity (Ghrelin and Leptin)
- Childhood obesity if less than 10 hours
- GI problems – especially reflux (2 way)
- Memory impairment / Alzheimers
- Mood changes
- Inattention / decreased reaction time
- Increased pain sensitivity
- Infertility
- Cancer eg oesophageal cancer
- Cardiovascular Problems

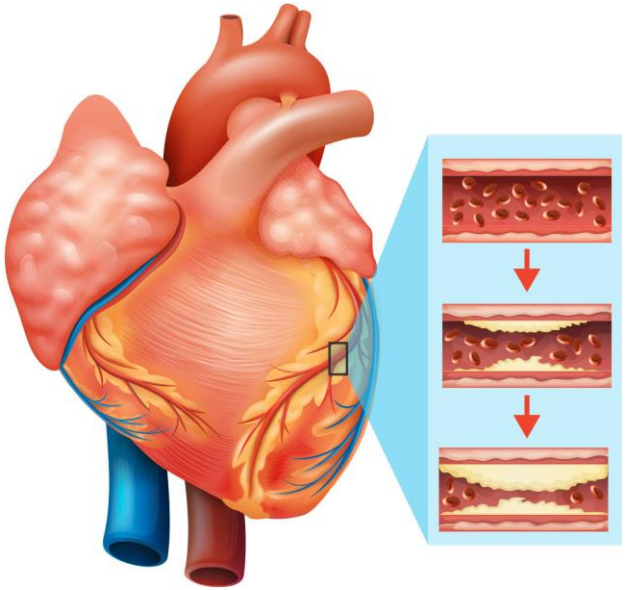


Cardiovascular Consequences of Poor Quality Sleep

5 dimensions to poor sleep quality

- Sleep Duration
- Chronotype (late night or early morning)
- Sleep Apnoea
- Daytime drowsiness
- Insomnia

  Each item rated out of 5 (total 25)



Findings

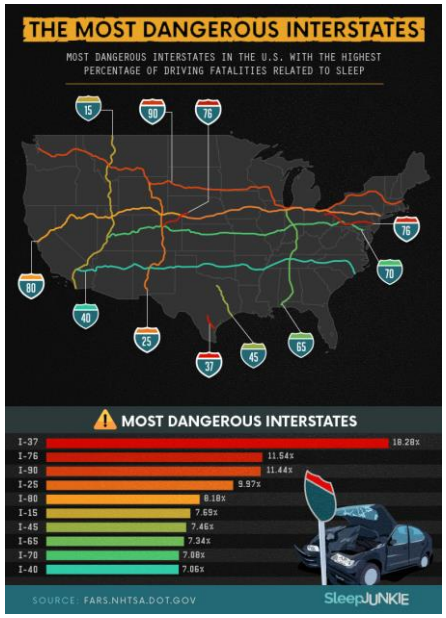
- At 2 year follow-up , each point increase in score reduced the risk of a cardiovascular event by 18%
- It was estimated that over 30% of CV events could be prevented by achieving a score of >21

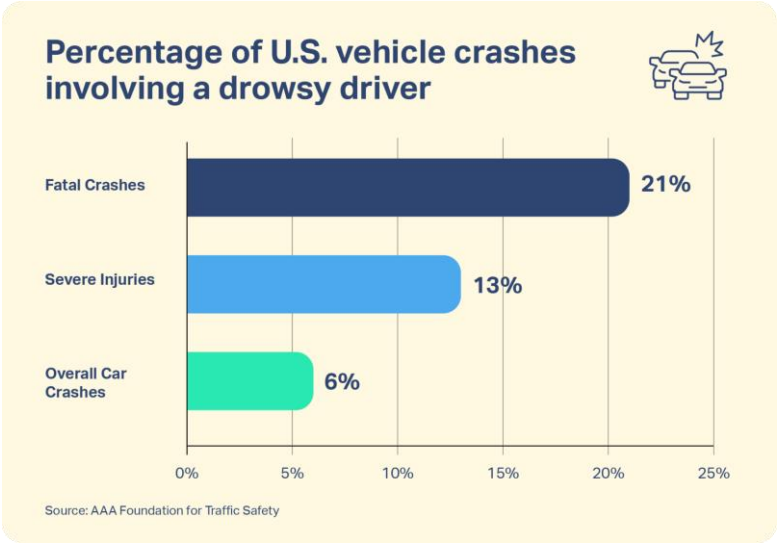
Nambiema A, et al Healthy sleep score changes and incident cardiovascular disease in European prospective community-based cohorts. Eur Heart J. 2023 Dec 14;44(47):4968-4978.

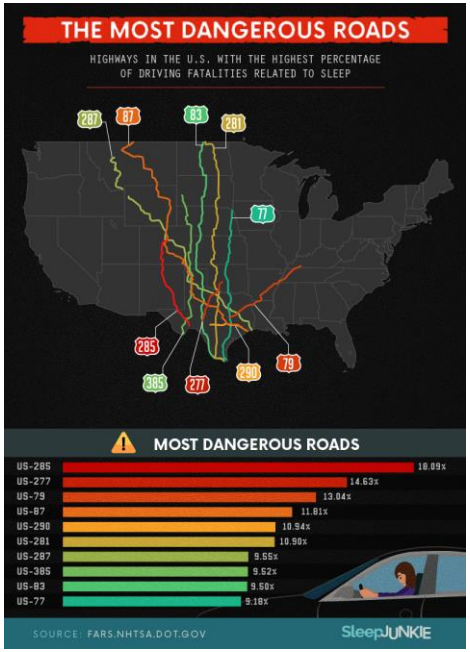
Cognitive impacts of sleep deprivation

- **Involuntary microsleeps occur.**
- **Attention** to intensive performance is unstable, with **increased errors of omission and commission.**
- **Cognitive slowing** occurs in self-paced tasks.
- Time pressure increases **cognitive errors.**
- **Response time slows.**
- Performance declines in **short-term recall of working memory.**
- Performance requiring divergent thinking deteriorates.
- **Learning (acquisition) of cognitive tasks is reduced**.
- An increase in response suppression errors in tasks requiring normal primarily prefrontal cortex function.
- Compensatory efforts to remain behaviorally effective are increased.
- Although tasks may be done well, **performance deteriorates as tasks duration increases**

Road Safety is compromised







Work Safety is compromised

- 27% report being sleepy at work at least 2 days / week
- 19% report making errors at work
- 2% report being injured

- Hypnotic Drug Dependence

Physician Performance is Compromised

- 30% of physicians self-report chronic insomnia or another sleep problem

- Lack of sleep is also associated with burnout, and leads to increased psychological distress and decreased job satisfaction

- An NIH study of surgeons found that after 18 or more hours without sleep there was
  - 36% increase in medication errors
  - 5x as many diagnostic errors
  - 2x as many attention lapses
  - 61% more injuries from needles

- NHS (UK) study of health care workers
  - 33% felt fatigue was affecting their performance
  - 33% felt fatigue may have affected performance
  - 25% said they'd made a mistake or caused harm to a patient

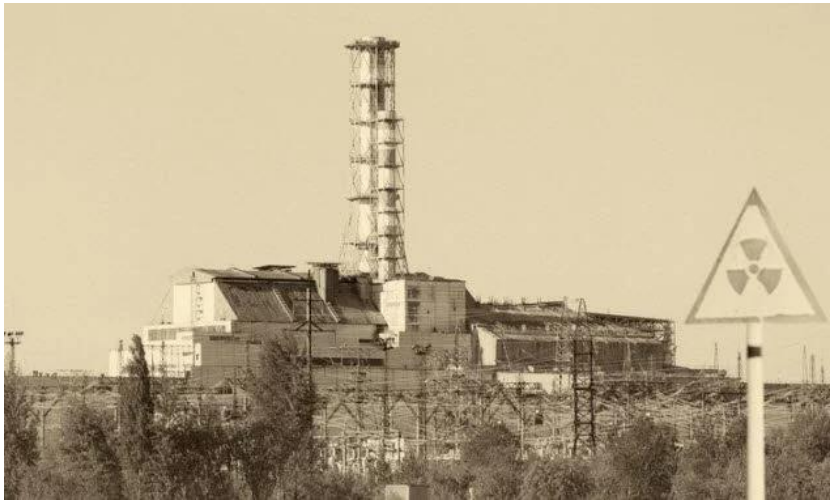
- **With less than < 4 hours sleep the night before, your functioning is impaired to the same extent as if you had a blood alcohol level of > 0.08%**

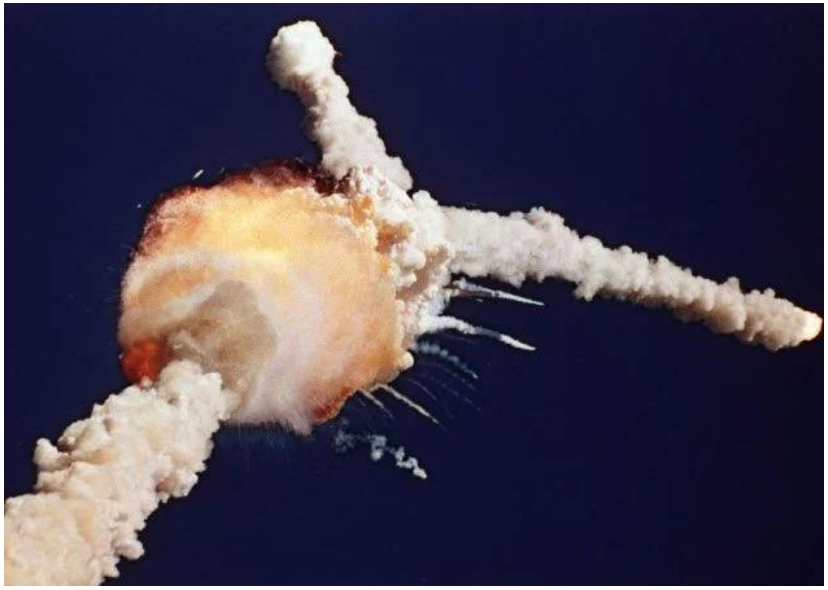
Sleep and athletes performance

- Increased sleep accelerates recovery from muscular injuries

- Less sleep increases the risk of injury
- Tennis players increased accuracy of their serves by 36% when getting 9 hrs. sleep. The accuracy decreased by 53% after less than 6 hours sleep

- Swimmers and athletes improved their times and their starting (reaction) time
- Many sports teams now have sleep coaches





But despite all that.....

1 in 3

people with insomnia symptoms have been diagnosed with the condition.

6 years

is the length of time people are experiencing sleep issues for, on average, without seeking support for them.

75%

of workers cite the workplace, with factors including workload, job security worries and out of hours messages and emails as a cause for poor sleep.

1/3

experience sleep poverty, where poor living conditions, noise pollution and uncomfortable sleep environments reduce sleep quality.

48%

have engaged in high risk behaviours when unable to fall asleep.

1 in 20

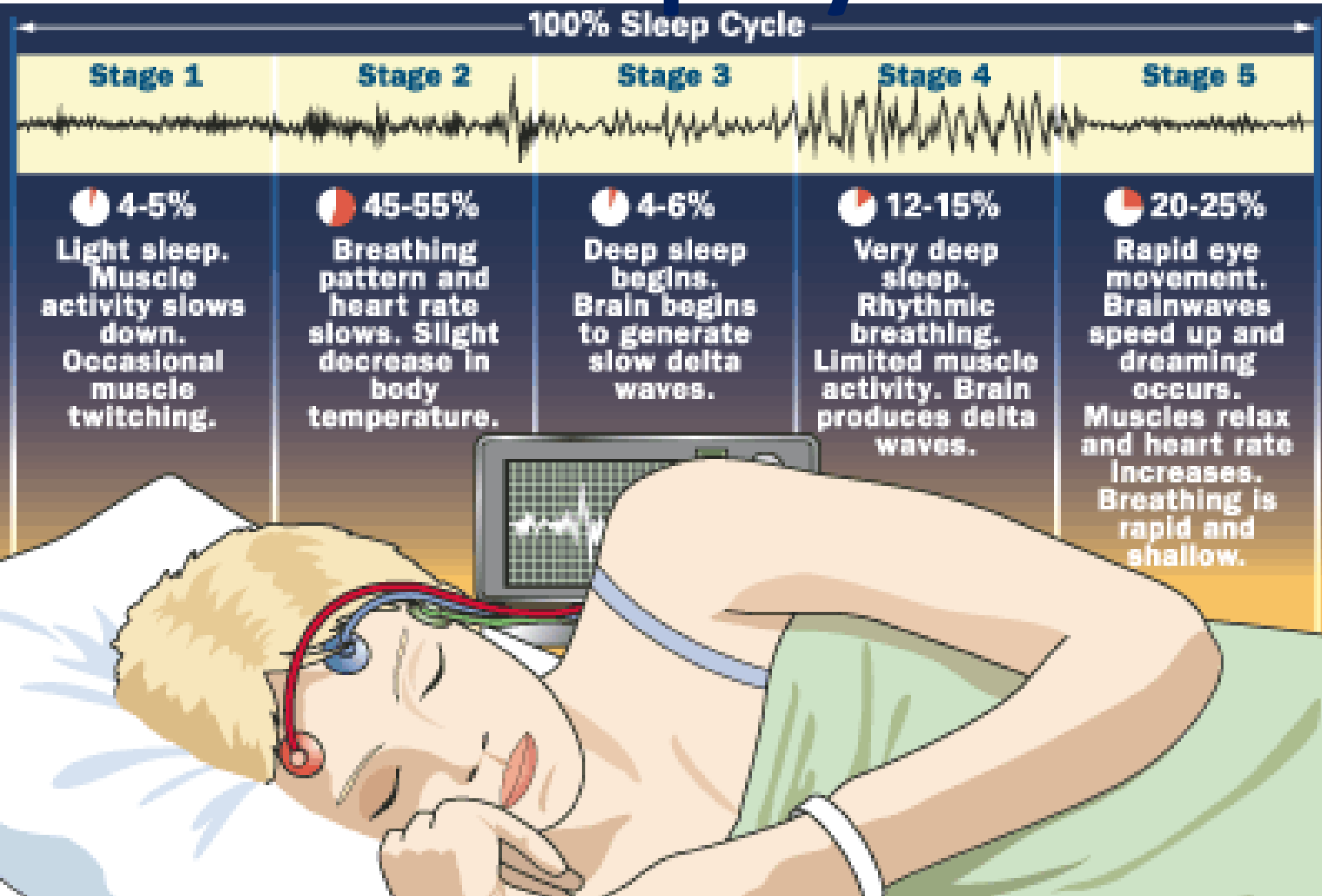
are aware of the extent of the links between prolonged poor sleep and health conditions.

Understanding how we sleep : 5 Factors

- The Sleep Cycle
- Sleep Homeostasis
- Circadian Rhythm
- Chronotypes
- Conditioned Arousal

The Sleep Cycle and the Stages of Sleep

The Sleep Cycle



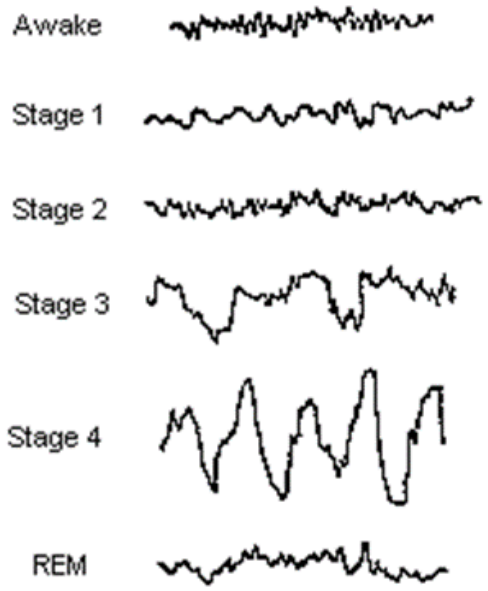
The Stages of Sleep

- Stage 1- Transition to sleep, 5% of total time

- Stage 2- Light Non-REM sleep 45% of total time
  - Memory restoration and moving
  - Muscle skills enhancement

- Stage 3 & 4- Deep, slow wave Non-REM sleep, Most restorative sleep 25% of total time
  - Storing memories
  - Trimming synapses
  - Moving memories within the brain
  - Cleansing the brain
  - Physical Recovery

- REM - Rapid eye movement – When we dream 25% of total time
  - Originates within the pre-frontal cortex
  - Divorces memories from emotional charge
  - Creates new neural connections that contribute to
    - Cognitive functioning
    - Emotional intelligence
    - Memory integration
    - Creativity
    - Insight and problem solving



Rapid Eye Movement (REM) Sleep

- Brain waves increase to the awake level

- 3-5 cycles a night and most dreams occur during this stage, although we can dream in any stage

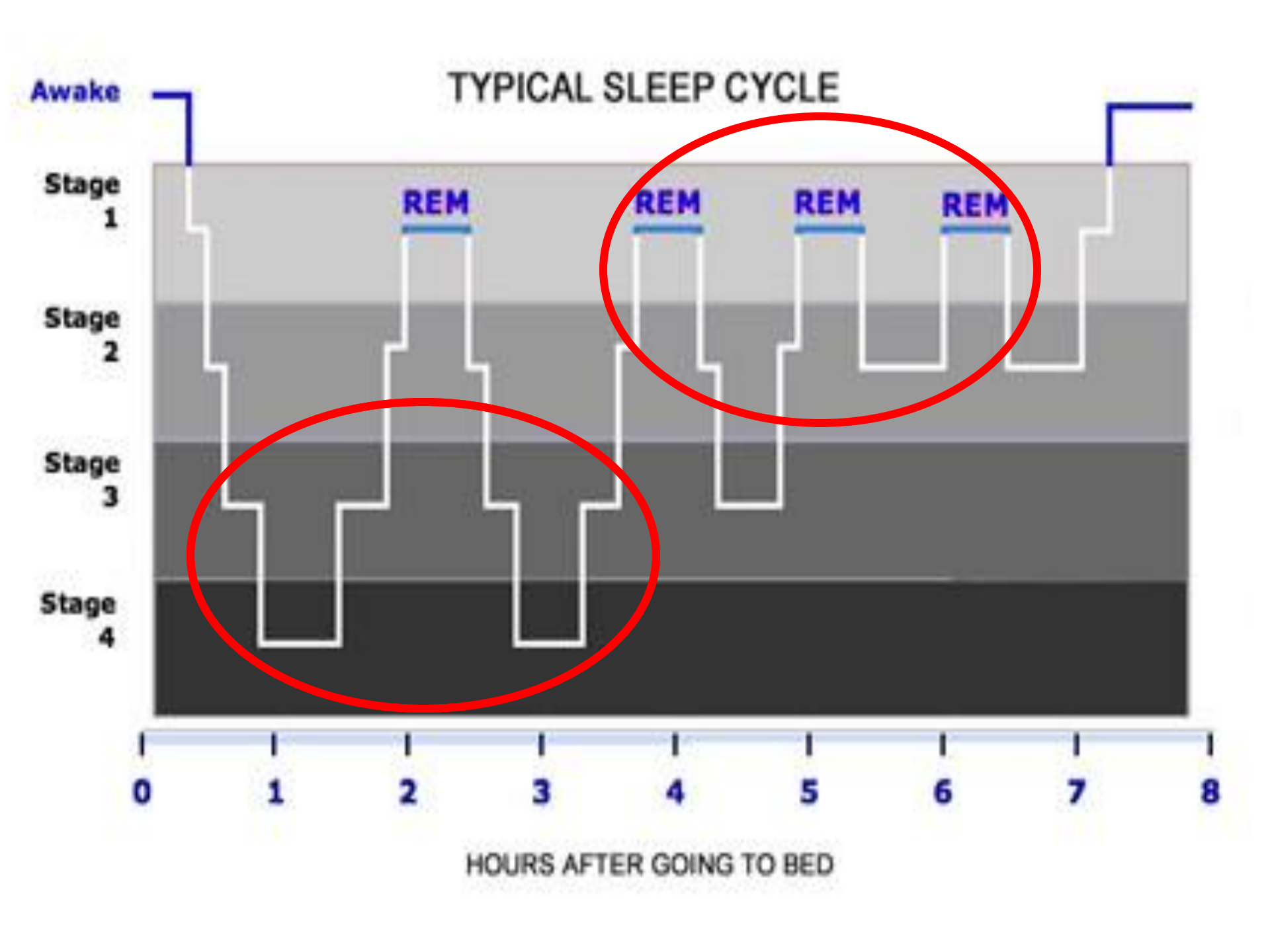
- Physical changes occur during REM
  - Increase in H.R., B.P., and breathing rate
  - Breathing more shallow and irregular
  - Eyes jerk rapidly (REM)
  - Limb muscles temporarily paralyzed
  - Some loss of temperature regulation
  - Testosterone release

- Infants spend 50% of time in REM

- Progressively spend less time in REM as we age

- Supressed by Alcohol, CBD, antidepressants

- Disrupted REM sleep in pregnancy may contribute to ASD / ADHD


TYPICAL SLEEP CYCLE
Awake
Stage 1
Stage 2
Stage 3
Stage 4
REM
REM
REM
REM
0
1
2
3
4
5
6
7
8
HOURS AFTER GOING TO BED

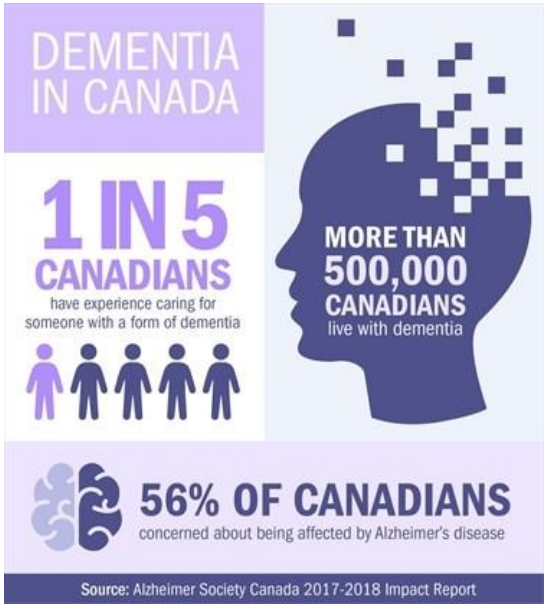
Sleep and the older patient

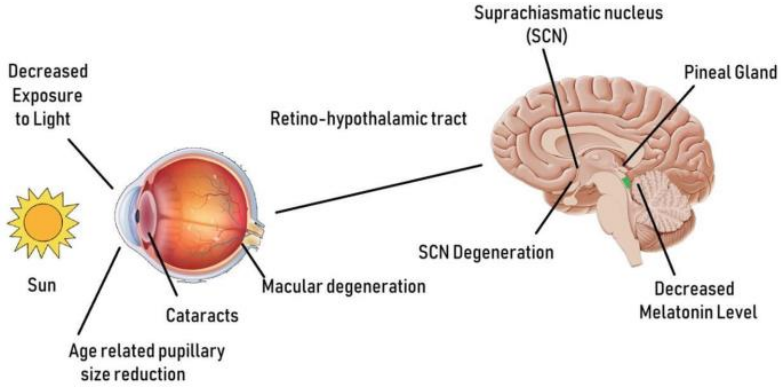
- Fragmented
- Less deep sleep (Stage 3 & 4)
- Less REM sleep
- Decreased sleep efficiency
- Circadian rhythm moves (back) earlier

- Decreased exposure to daylight affects melatonin levels
- Harder to store, integrate and recall memories
- Decreased cognitive performance with less sleep
- Areas that drive deep sleep are also the areas in the frontal lobe that are most likely to show changes in Alzheimers

Sleep and Dementia

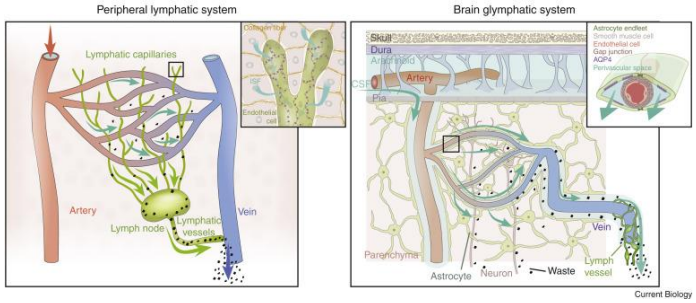
- Linked to insufficient Non-REM sleep
- Changes in Non-REM sleep pre-date dementia – could be a marker
- Beta-amyloid (causes typical plaques) and other proteins are removed during sleep by the glymphatic system





Glymphatic system

- Series of channels which circulate throughout the brain
- Includes CSF and drains into lymphatic system
- Nerve cells enlarge during the day
- Space in the vessels expands at night
- ? Switched on / off by noradrenaline



- Cleanses the brain, removes neurotoxins, unwanted proteins (Beta Amyloid, Tau)
- May also be related to brain nourishment – glucose, lipids, fatty acids, neurotransmitters (microbiome)
- Reduced glymphatic activity is seen after TBI, in all neurodegenerative conditions, and in the elderly
- Another reason why we need to sleep

Sleep and the Microbiome

- 14 Bacteria linked to better sleep
- 8 linked to insufficient sleep
- Insomnia reduces the count of 7 bacteria
- Insomnia increase the count of 12 bacteria

- 41 different bacteria involved

- Clostridium innocuum

Two processes control our sleep cycle

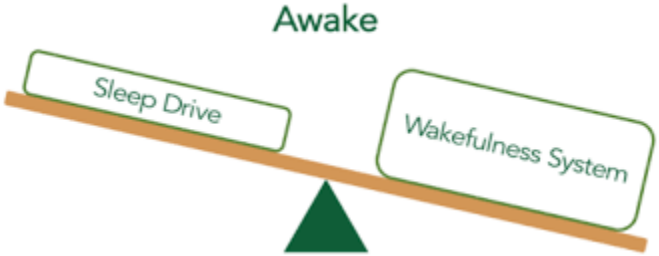
Sleep Homeostasis

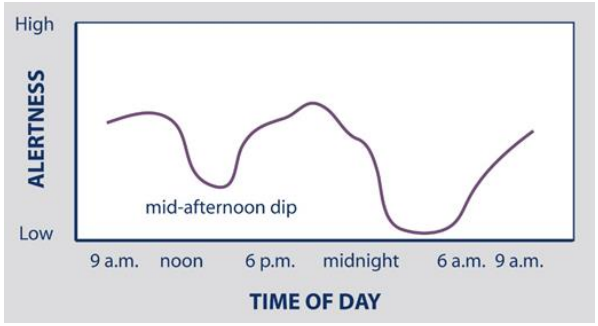
Circadian Rhythms

i. Sleep Homeostasis

Sleep Homeostasis

- Pressure to sleep increases during the day until an internal threshold is crossed causing sleep to occur
- Waking occurs when homeostatic drive decreases sufficiently to cross opposite threshold
- Adenosine and Orexin balance drives this – Caffeine reduces adenosine levels

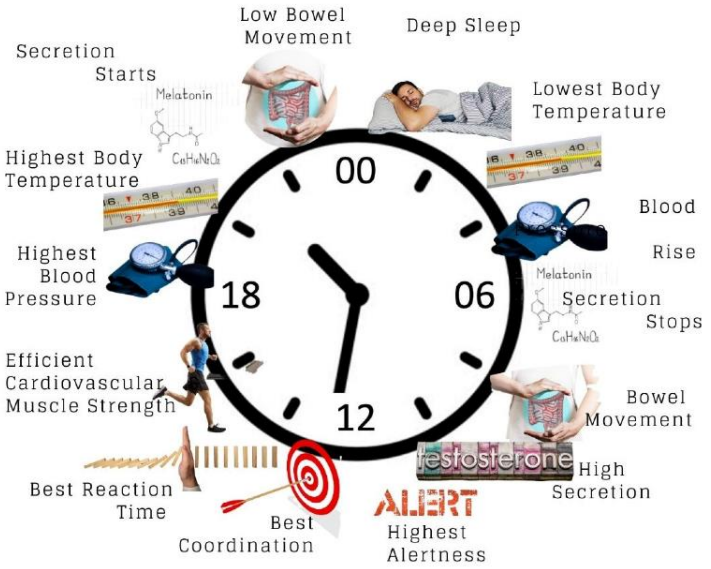




ii. Circadian Rhythms

Our Circadian Rhythms

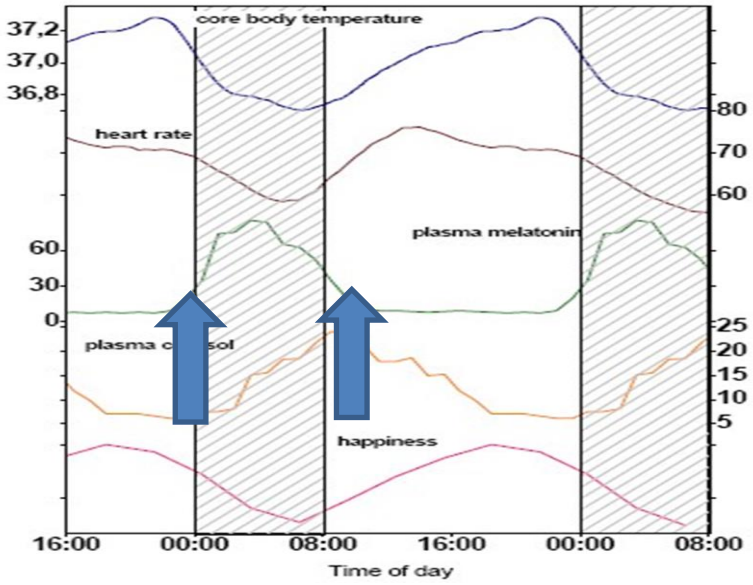
- Cyclical changes driven by an internal “biological clock” located in the suprachiasmatic nucleus (SCN)



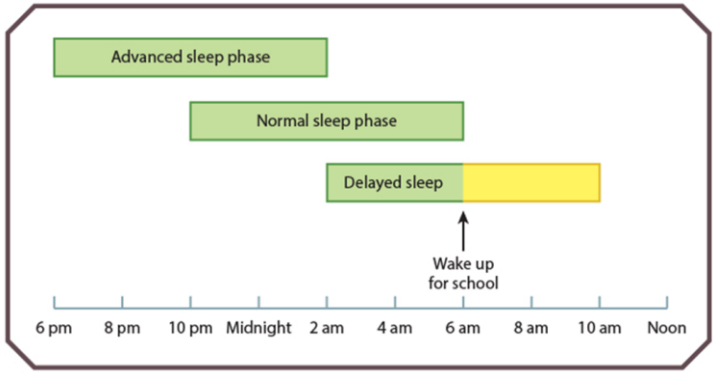
- Synchronised with the external environment

Our Circadian Rhythms

- Cyclical changes driven by an internal “biological clock” located in the suprachiasmatic nucleus (SCN)



- Synchronised with the external environment
  - Advanced Sleep phase disorder
    - Light Therapy in the evening
  - Delayed sleep phase disorder
    - Light therapy in the morning



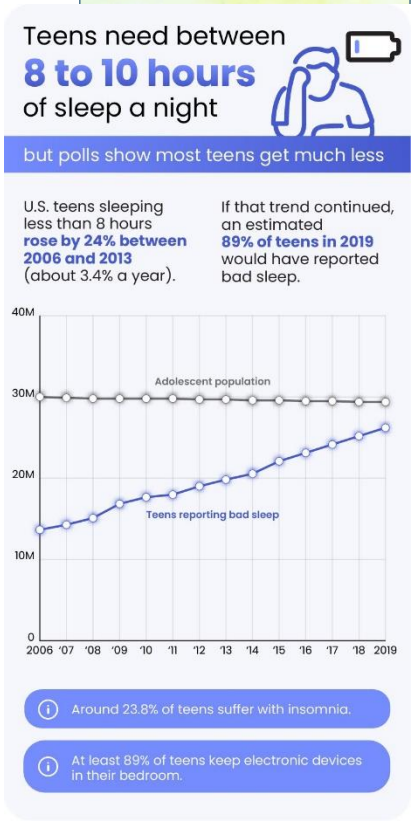
Many Teens Naturally Experience a Shift to a Later Sleep-Wake Cycle

- The biological clocks of children shift during adolescence, with a later bed time (around 11:00 pm) and a later wake time.

- Melatonin release is less and later

- Can create conflict with their schedules - particularly early school start times.

- Try melatonin 1-5 mgm, 4 hours before bed



2 Common Circadian Disruptions

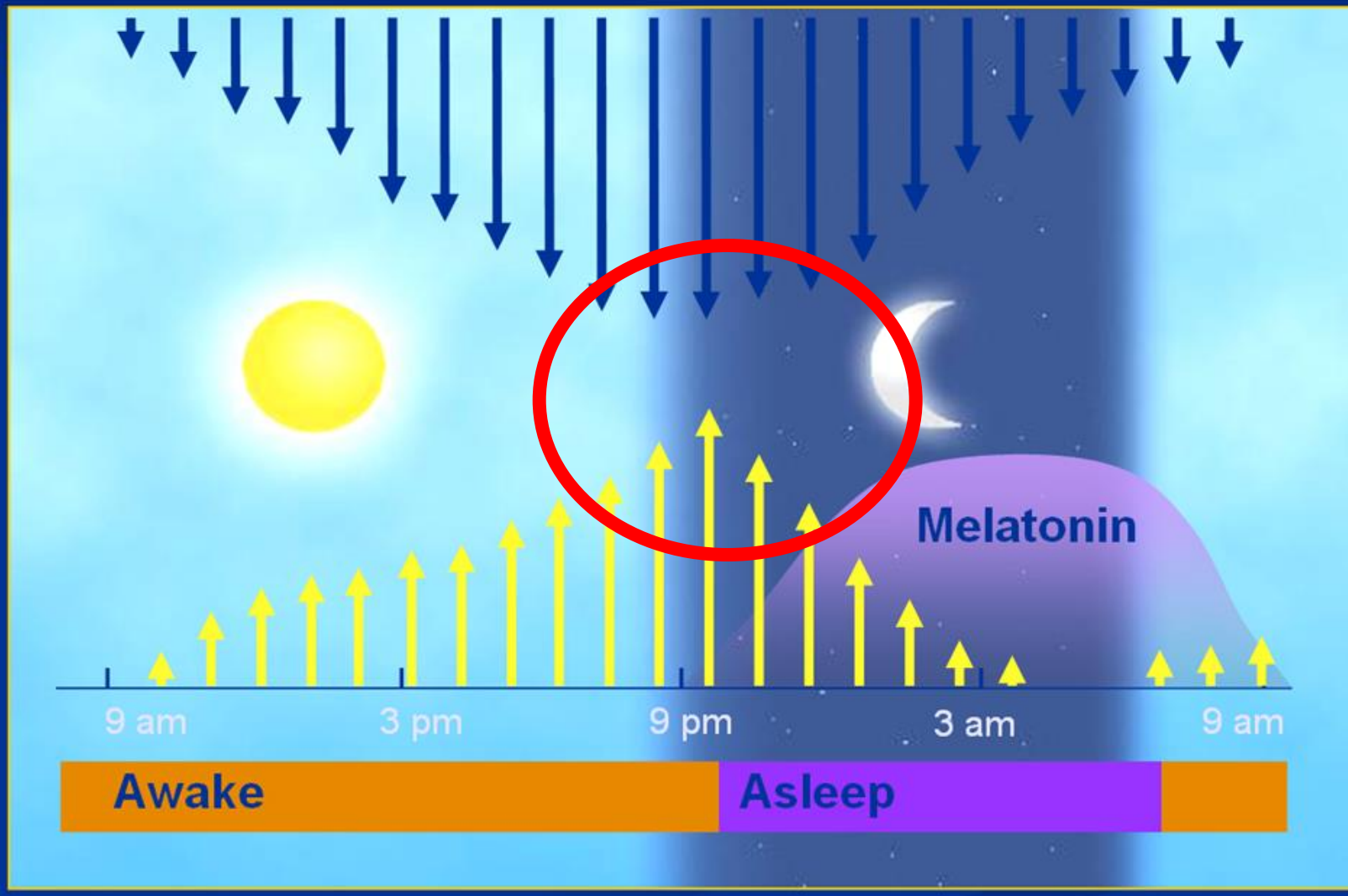
Shift Work

Working evening, night, irregular or rotating shifts

Jet Lag

Traveling across time zones disrupts sleep

Sleep Wake Cycle: Two Process Model



Chronotypes

Chronotypes

Body's natural preference for waking and sleeping (& eating)

- Affected by Genetics
- Driven by Circadian Rhythm
- Affects sleep, performance and activities
- Need to accept and adapt

- Early Bird 15%

- Sunrise to Sunset 55%

- Goes to Bed late 15%

- Irregular patterns 10%

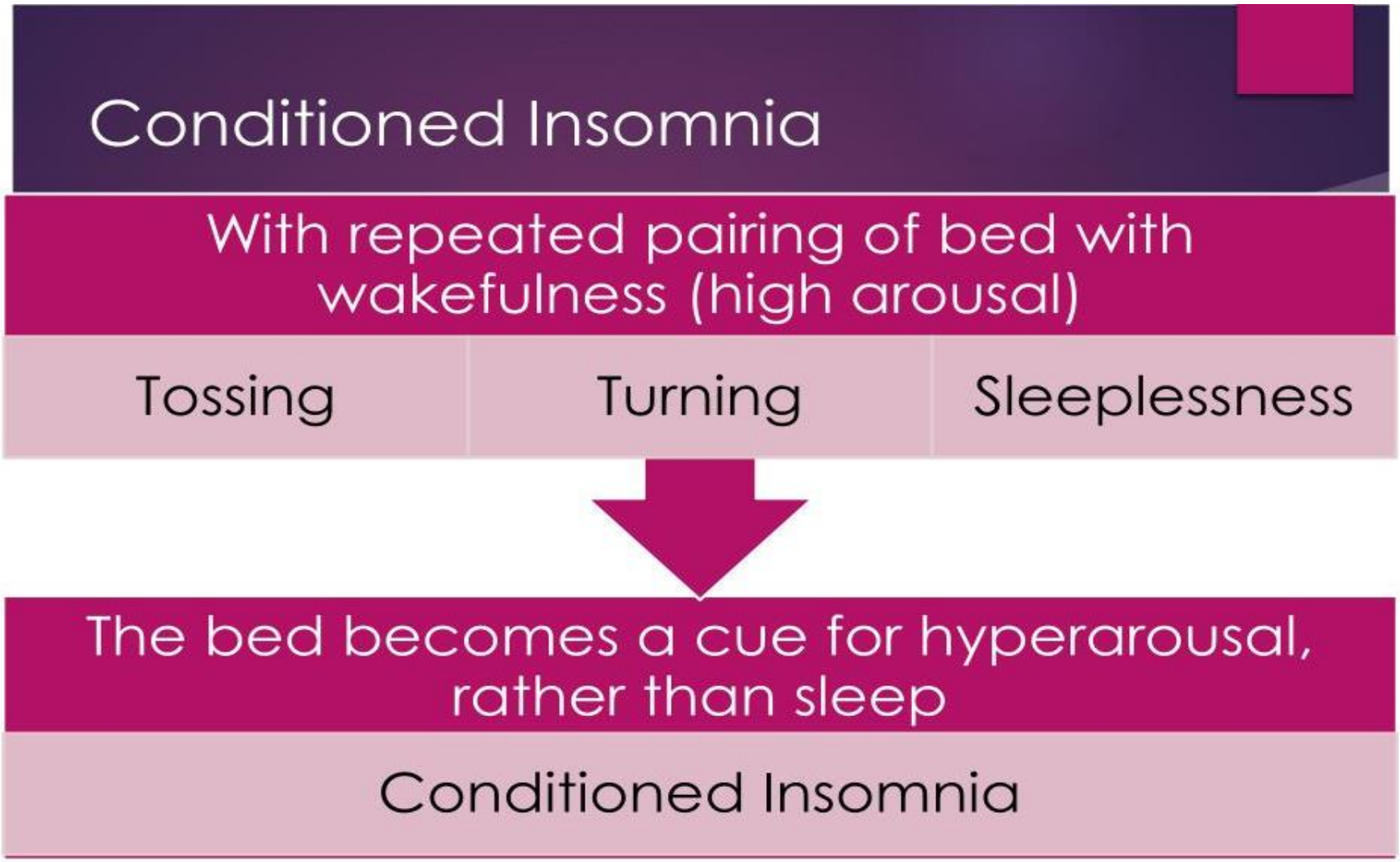
Napping

- 20 minutes or less
- Longer / variable patterns
- Naps around noon can be linked to increased mortality

Tip - Drinking a cup of black coffee immediately before napping can leave you more alert when you wake up

Conditioned Arousal

Conditioned Arousal



What affects the Quality of our sleep

Quality of Sleep

Look at

- Sleep patterns
- Sleep habits
- Environmental factors
- Other potential causes (psychosocial factors)

"Mom likes to have their bed made by seven. Dad doesn't wake up till eight."

Ways to Measure Sleep Quality

- Total amount of sleep
- Nap times
- Sleep efficiency
  - Total time asleep divided by total time in bed
  - Aiming for 85%
- Wake after sleep onset (WASO)
- Sleep latency (Time to get to sleep) - Too long or too short

Types of sleep problems

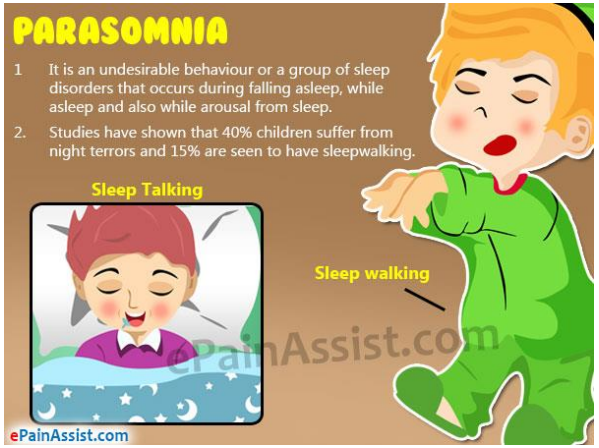
Types of Sleep Problems

- Insomnia
- Sleep-related breathing disorders
  - Obstructive / central sleep apnea
- Sleep-related movement disorders
  - Restless leg syndrome, periodic limb movement disorder (Fe, Folate, Renal - Gabapentin, Pregabalin, Clonazepam, Dopamine agonists) 25% of kids with ADHD
- Circadian rhythm sleep-wake disorders
  - Jet lag or shift work
  - Delayed or advanced sleep-phase syndrome
- Hypersomnias
  - Narcolepsy
- Parasomnias related to sleep cycle disruption

Parasomnias

Non-REM (Stage 3/4)

- Night terrors
- Sleepwalking
- Sleep talking



REM

- REM sleep behaviour disorder
- Nightmares
- Sleep paralysis

Other

- Nocturnal Sleep-related Eating Disorder
- Bruxism (teeth grinding)

Sleep Apnoea

- 3-5 % of adults – Male, obese, over 50, family Hx
  - Central or Obstructive
  - Snoring
  - Restless
  - Stop breathing
  - Wake with panic symptoms
  - Day-time sleepiness
  - Erectile Dysfunction

- Can contribute to obesity, cognitive changes, hypertension, MI, Insulin resistance / metabolic functioning
- 2% of children
  - Snoring
  - Tonsils
- Polysomnography – Measures apneic episodes per hour.
  - 5 – 14 = mild
  - 14 – 29 = Moderate
  - >30 = Severe (Can't drive unless its being treated)

Treatment options for Sleep Apnea

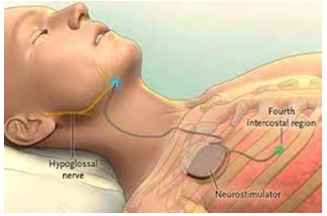
- **Behavioral Therapy**
  - Avoid alcohol, nicotine and sleep medications
  - Lose weight if overweight

- **Sleep posture (sleep noodle)**
- **CPAP (Continuous Positive Airway Pressure)**

- **BPAP – Higher pressure when you inhale**

- **APAP**
- **Dental appliance**

- **Surgery – Uvulopalatopharyngealplasty**
  - **Jaw Realignment**
- **Hypoglossal nerve stimulation**



- **Tirzepatide**

Insomnia

Insomnia is Inadequate or Poor Quality Sleep

Can be any or all of:

- Difficulty falling asleep
- Frequent awakenings during the night
- Waking too early and being unable to go back to sleep
- Unrefreshed or non-restorative sleep
- Daytime sleepiness or deficits in functioning (differentiate from fatigue)

Types of Insomnia

- **Primary – Transient, Short-term or Long-term**
  - **Psychophysiological**
  - **Adjustment / Situational**
  - **Poor sleep hygiene**
  - **Idiopathic**

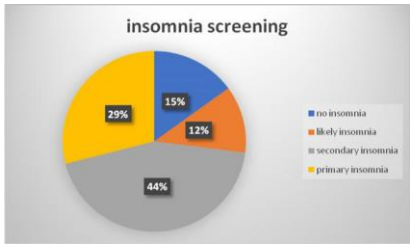
- **Secondary**
  - **Drugs**
  - **Medical conditions**
  - **Psychiatric Disorders**
  - **Substance use**

Assessment of insomnia

Approach to assessing insomnia

- **Suspect / Ask - Screening questions**
- **Assess quality** of sleep and sleep habits
- **Rule out**
  - Medical condition
  - Medication effects
  - Psychiatric disorder
  - Substance Misuse
  - Stressors / changes that may be interfering w
- **Measure / Track -** Sleep log / Rating scale
- **Refer** if help is needed with a diagnosis or plan

Approach to assessing insomnia



Suspect / Ask

- Are you content with your sleep? Do you feel refreshed on waking (insomnia)?

- Are you excessively sleepy during the day? (May also suggest narcolepsy, primary hypersomnia and obstructive apnea)

- Does your bedpartner (or parent) complain about your sleep? (parasomnias, sleep apnoea and RLS)

Approach to assessing insomnia

Assess the quality of sleep and sleep habits

How much sleep do you get and when (sleep patterns)?

What activities occur before and after going to bed (sleep habits)?

Do any environmental factors affect your sleep?

Are there things you do during the day that might affect your sleep (caffeine, alcohol, exercise, diet)?

Approach to assessing insomnia

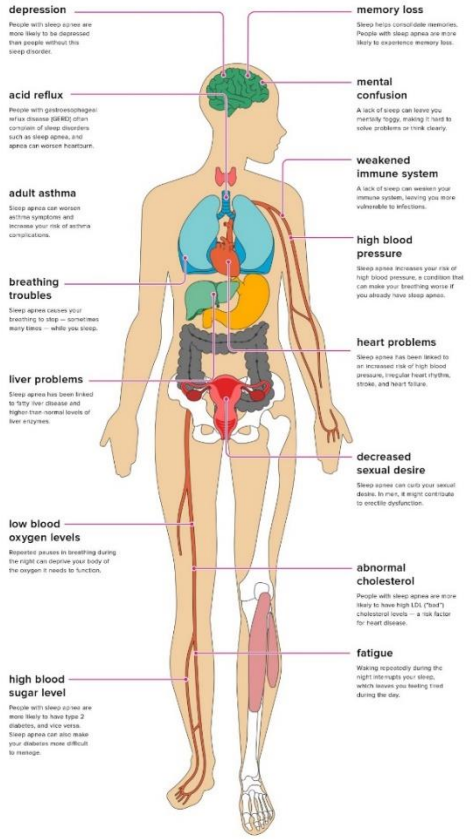
Rule out

- Medical condition
- Medication effects
- Psychiatric disorder

- Substance misuse
- Stressors / changes that may be interfering with sleep

Medical Conditions Contributing to Insomnia

- Hyperthyroidism
- Arthritis or any other chronic painful condition
- Chronic lung or kidney disease
- Cardiovascular disease (heart failure, CAD)
- Heartburn (GERD)
- Neurological disorders (epilepsy, Alzheimer's, headaches, stroke, tumors, Parkinson's Disease)
- Diabetes
- Menopause/Menstrual disorders
- Autism Spectrum Disorders (70%)



- Depression, Anxiety, BAD, Psychotic disorders, Substance use

Medications Contributing to Insomnia

- Alcohol
- Caffeine/chocolate
- Nicotine/nicotine patch
- Beta blockers
- Calcium channel blockers
- Bronchodilators

- Corticosteroids
- Decongestants
- Antidepressants
- Thyroid hormones
- Anticonvulsants
- Anti-hypertensives
- Stimulants

Approach to assessing insomnia

- Measure / Track
- Sleep log
- Rating scale

my

SLEEP TRACKER

MONTH of

JAN FEB MAR APR MAY JUN

JUL AUG SEP OCT NOV DEC

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
7 PM																															
8 PM																															
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6 AM																															
7 AM																															
8 AM																															
9 AM																															
TOTAL																															

Hackensack Meridian *Health*

Sleep Diary ᶻᶻZ

DAY OF THE WEEK							
DATE							
1 What time did I get into bed?							
2 When did I try to fall asleep?							
3 When did I actually fall asleep?							
4 How many times did I wake up?							
5 How long did it take me to go back to sleep?							
6 When did my alarm go off?							
7 When did I get out of bed?							
8 Rate quality of sleep (1-10)							

Set Bed Time: _____

Set Rise Time: _____

Average sleep duration: _____

Average sleep quality: _____

The Sleep Council

Sleep Diary: **MORNING**

Complete each morning

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
Day of the week							
What time did you go to bed last night?							
What time did you wake this morning?							
How long did it take you to first fall asleep (in minutes)?							
Did you fall asleep: Easily After some time With difficulty							
How many times did you wake in the night?							
How long were you awake during the night in total?							
How long did you sleep last night in total?							
What disturbed your sleep? (physical or mental factors such as stress, worry, noise, lights, comfort etc)							
How would you rate your quality of sleep from 1-5? (with 1 being very poor and 5 being very good)							
How do you feel this morning: Refreshed OK Lethargic							
Any other notes							

The Sleep Council

Sleep Diary: **END OF DAY**

Complete at the end of the day

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
Day of the week							
How many caffeinated drinks did you have BEFORE 5pm?							
How many caffeinated drinks did you have AFTER 5pm?							
How many alcohol units did you have BEFORE 5pm?							
How many alcohol units did you have AFTER 5pm?							
In minutes, how much exercise did you do today BEFORE 9pm?							
In minutes, how much exercise did you do today AFTER 9pm?							
Have you taken any medications today? And if so, what.							
Did you have a nap during the day or evening and for how long? (in minutes)							
Throughout the day have you felt any of the following: Grumpy Impatient Tired Moody Unable to concentrate							
In the hour before bed what has your bedtime routine included?							

	First day	*Second day*	*Third day*	*Fourth day*
Complete in morning				
Bedtime (date/time)	10:45 p.m. (4/10)			
Rise time (date/time)	7:00 a.m. (4/11)			
Estimated time to fall asleep	30 minutes			
Estimated number of awakenings and total time awake	5 times 2 hours			
Estimated amount of sleep obtained	4 hours			
Complete at bedtime				
Naps (number, time, and duration)	1 at 3:30 p.m. 45 minutes			
Alcoholic drinks (number and time)	1 drink at 8:00 p.m. 2 drinks at 9:00 p.m.			
List stresses of the day	Flat tire Argued with son			
Rate how you felt today 1 = Very tired/sleepy 2 = Somewhat tired/sleepy 3 = Fairly alert 4 = Wide awake	2			
Irritability level 1 = None 2 = Some 3 = Moderate 4 = Fairly high 5 = High	5			
Medications				

EPWORTH SLEEPINESS SCALE FORM

Instructions: Be as truthful as possible. Print the form. Read the situation in the first column; select your response from the second column; enter that number in the third column. Total all of the entries in the third column and enter the total in the last box.

Situation	Responses	Score
Sitting and Reading	0 = would never doze 1 = slight chance of dozing 2 = moderate chance of dozing 3 = high chance of dozing	
Watching Television	0 = would never doze 1 = slight chance of dozing 2 = moderate chance of dozing 3 = high chance of dozing	
Sitting inactive in a public place, for example, a theater or a meeting	0 = would never doze 1 = slight chance of dozing 2 = moderate chance of dozing 3 = high chance of dozing	
As a passenger in a car for an hour without a break	0 = would never doze 1 = slight chance of dozing 2 = moderate chance of dozing 3 = high chance of dozing	
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Sitting and talking to someone	0 = would never doze 1 = slight chance of dozing 2 = moderate chance of dozing 3 = high chance of dozing	
Sitting quietly after lunch when you've had no alcohol	0 = would never doze 1 = slight chance of dozing 2 = moderate chance of dozing 3 = high chance of dozing	
In a car while stopped in traffic	0 = would never doze 1 = slight chance of dozing 2 = moderate chance of dozing 3 = high chance of dozing	
TOTAL SCORE		

A score of 10 or greater indicates a possible sleep disorder. Take the completed form to your doctor.

Approach to assessing insomnia

Refer if help is needed with a diagnosis or management of a chronic sleep problem

Paediatric Sleep Screener in an EMR

- Introducing a screening tool into the EMR in clinics in PA & NJ
- 409,000 visits - 211,000 children
- Completed in 90% of the visits

- Categories
  - Bed Sharing 6.5%
  - Snoring > 3 nights / week 9.7%
  - Perceived sleep problems 12.2%
  - Insufficient sleep duration 34.4%
  - Daytime sleepiness (adolescents) 14.7%

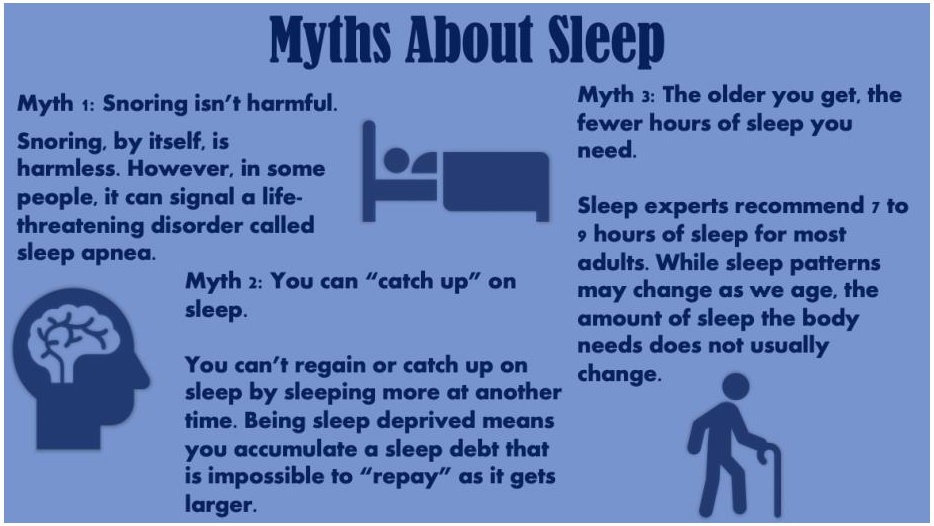
- The presence of the screener led to significant increases in
  - Diagnoses made
  - Number of sleep studies arranged
  - Number of referrals to a sleep clinic

Treatment of insomnia

Best Practice Treatment

Education about Sleep

- Importance of sleep
  - Mental health
  - Physical health
  - Other consequences
- Sleep cycle
- Dispel sleep myths
- Benefits or otherwise of sleep medication
- Alternatives to sleep medication
- Making it a priority (readiness for change)



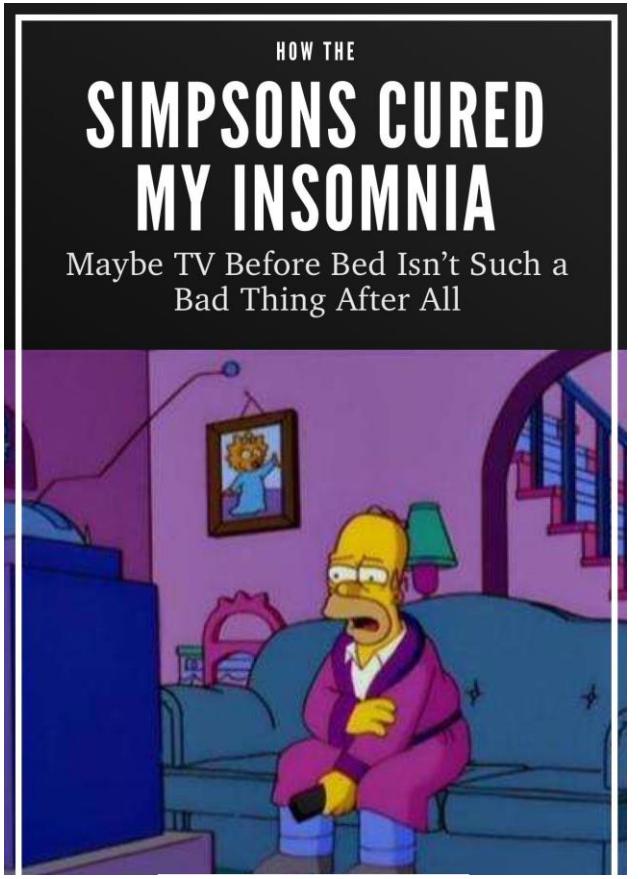
Web Sites providing lists of free Sleep apps

- https://positiveroutines.com/free-sleep-apps/
- https://www.womenshealthmag.com/uk/health/sleep/g25458488/best-apps-insomnia/
- https://www.goodhousekeeping.com/health/wellness/g26963663/best-sleep-apps/
- https://www.wellandgood.com/best-sleep-apps/

Sleep Hygiene

Habits and environments that promote sleep

- A consistent sleep schedule
- Napping is kept to a minimum
- A nightly routine avoiding things that may interfere with sleep
- Healthy daily habits
- The bedroom environment is conducive to sleep



Set a consistent sleep schedule

- Have a regular sleep time
- Have a fixed wake-up time
- Priorise sleep
- Make gradual adjustments

Don’t overdo naps

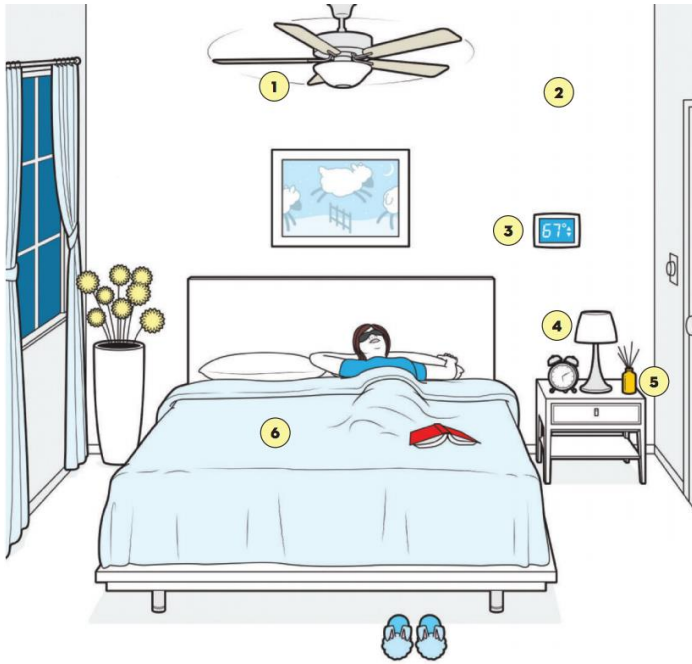
- Brief naps (less than 20 minutes)
- Restrict to early afternoon

Follow a nightly routine

- Keep your routine constant
- Allow 30 minutes to wind down before bed
- Dim your lights
- Unplug electronics
- Use relaxation techniques
- Don’t toss and turn

Bed Time Routine

- Hot herbal tea or warm milk
- Read or listen to books on tape
- Crossword puzzle, Sudoku or knitting
- Relaxing music
- Down time
- Comfortable sleep wear
- Use the bathroom
- Scents (lavender, vanilla) – may also reduce cognitive decline



Deal with your worries before bedtime

- Plan for the next day
- Set a worry time earlier in the evening
- Journaling
  - Writing down things you can't get out of your head
  - Make a list of things you are worried about or need to do that might keep you up at night.
  - Turn the page before you go to bed

Cultivate Healthy Daily Habits

Incorporate positive activities during the day

- Be physically active
- Get daylight exposure
- Don’t smoke
- Reduce alcohol consumption
- Cut down on caffeine, especially later in the day
- Don’t eat late
- Restrict in-bed activities

Optimise the Bedroom Environment

- Have a comfortable mattress, pillow and bedding
- Have comfortable sleep wear
- Set a cooler but comfortable temperature
- Block out light
- Turn off all screens
- Drown out noise
- Try calming scents (lavender)
- Use a weighted blanket

HEALTHY SLEEP HYGIENE IN KIDS

For the first time, sleep was included in the 2016 ParticipACTION Report Card on Physical Activity for Children and Youth.

Research shows that almost a third of Canadian children and teenagers aren't getting enough sleep each night. Those that are getting enough sleep may not be getting good quality sleep and the negative implications of poor sleep may impact other areas of their lives. For example, too little sleep is associated with excess body weight, lower academic achievement, and shorter attention span.

So what can you do? That's where sleep hygiene comes in. Sleep hygiene describes the habits and practices that are conducive to sleeping well on a regular basis. Below are tips to help give children and teens the good quality rest they need.

GENERAL TIPS FOR HAVING HEALTHY SLEEP HYGIENE

Go to bed and wake up at the same time every day (even on the weekends!)

Don't go to bed feeling hungry, but also don't eat a heavy meal right before bed

Avoid caffeine consumption (e.g., coffee, soft drinks, chocolate) starting in the late afternoon

Develop a relaxing routine before bedtime – ideas include bathing, music, and reading

Expose yourself to bright light in the morning – sunlight helps the biological clock to reset itself each day

Reserve your bedroom for sleeping only – keep cell phones, computers, televisions and video games out of your bedroom

Make sure your bedroom is conducive to sleep – it should be dark, quiet, comfortable, and cool

Exercise regularly during the day

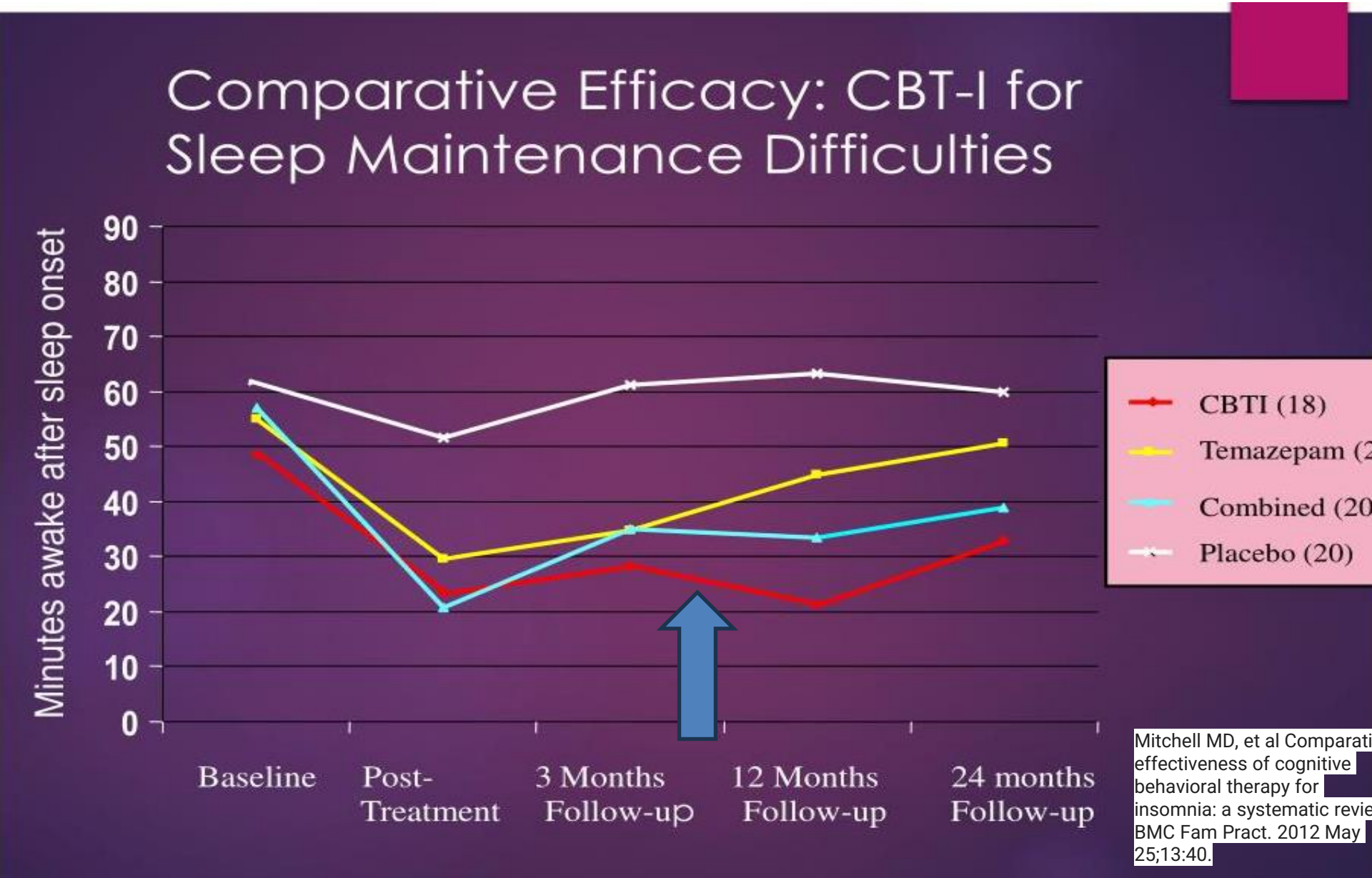
Sleep on a comfortable mattress and pillow

Don't have pets in your bedroom

The full 2016 Report Card and additional tools and resources are available online at www.participACTION.com/reportcard

CBT for insomnia (CBTI)

Efficacy Of CBT For Insomnia

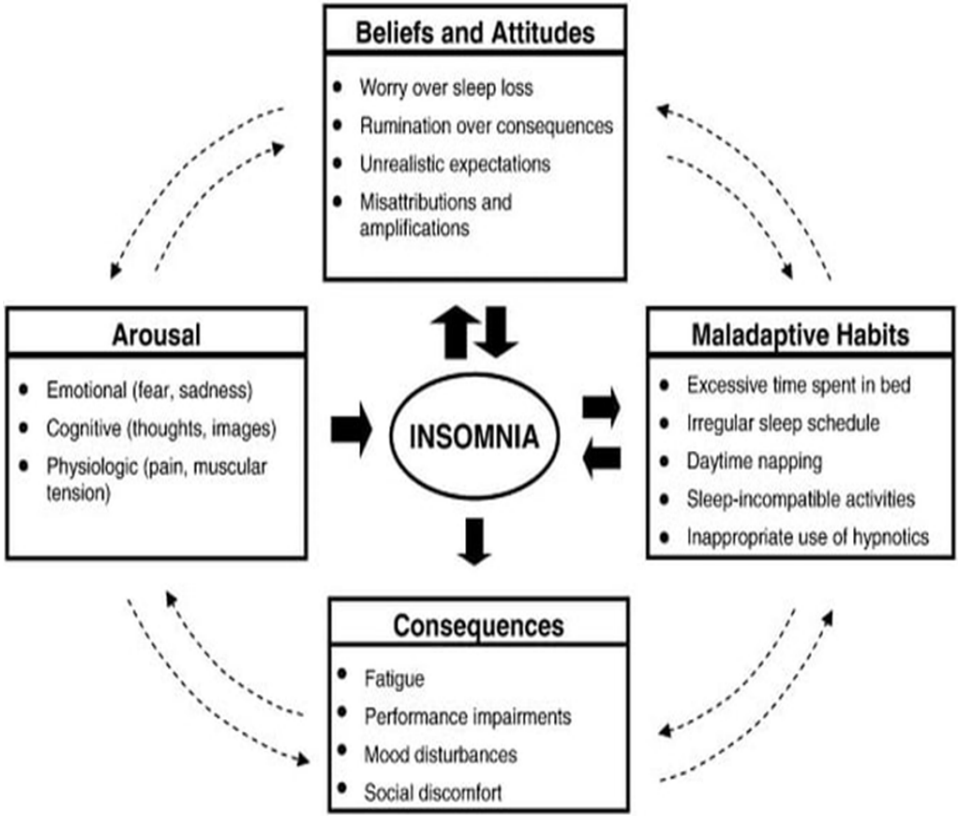


Mitchell MD, et al Comparati effectiveness of cognitive behavioral therapy for insomnia: a systematic revie BMC Fam Pract. 2012 May 25;13:40.

Components of CBT for Insomnia

- **Stimulus Control**
- **Cognitive**

  Interventions
- **Relaxation**
- **Sleep Restriction**



Stimulus Control

- Insomnia is a conditioned / learned response to factors that interfere with the natural sleep patterns
- The goal is to break this cycle
- Promote a consistent sleep / wake cycle
- Re-associate the bedroom with sleeping
- Well established stand alone treatment

Stimulus control therapy

– Use the bedroom for sex and sleep only

– Go to bed only when sleepy

– Don’t spend time wide awake in the bedroom

– Leave the bedroom if awake for more than 20 minutes

– Return to bed only when sleepy

– Repeat if necessary

– Do not nap during the day

– Get up at the same time every morning

Cognitive Restructuring

- Identify thought processes that contribute to sleep anxiety
- Identify erroneous beliefs about sleep
  - Challenge their veracity
  - Substitute more appropriate thoughts
- Includes self-talk and distraction
- Hide the face of the alarm clock
- Postpone worry episodes
- Journaling

Relaxation

- Plan a quiet / relaxation time before bed to deactivate the arousal system

- Develop a bedtime routine

- Relaxation Therapy:
  - Progressive muscle relaxation
  - Meditation
  - Imagery training
  - Diaphragmatic breathing

4-7-8

- Breathing exercise
- Based on Yoga Principles

- Exhale through your mouth with a whooshing sound
- Tip of tongue against top of upper teeth
- Inhale for 4 counts through the nose
- Hold your breath for 7 counts
- Exhale through your mouth for 8 counts
- Repeat 3 times

- Practice sitting up first

What typically happens during CBTI

Session 1 – Initial Assessment

- **Duration:** 60–90 minutes

- **Objectives:**
  - **Gather comprehensive information** about sleep patterns, medical history, and any contributing psychological factors.
  - Determine the suitability of CBT-I for this specific situation.
  - Introduce the concept of a **sleep diary** and provide instructions on how to maintain it.

Session 2 – Introduction to CBTi

- **Duration:** 30–60 minutes

- **Objectives:**
  - **Review the sleep diary data** collected during the assessment phase.
  - **Educate** on the basics of sleep regulation, including sleep drive and circadian rhythms.
  - Introduce the **Condition Arousal Model** of Insomnia and explore predisposing, precipitating, and perpetuating factors.
  - Begin implementing **Stimulus Control Therapy (SCT)** to realign sleep patterns.

Session 3 – Sleep Hygiene and Relaxation Techniques

- **Duration**: 30–60 minutes

- **Objectives**:
- **Review progress** and challenges with SCT and SRT.
- Discuss and modify **sleep hygiene practices** to create an environment conducive to sleep.
- Introduce **relaxation techniques**, such as progressive muscle relaxation or deep breathing exercises, to reduce pre-sleep arousal.

Session 4 – Cognitive Therapy

- **Duration**: 30–60 minutes

- **Objectives**:
- **Identify and challenge unhelpful beliefs** and attitudes about sleep that may contribute to insomnia.
- Develop strategies to **manage anxiety or intrusive thoughts** related to sleep.
- **Continue adjusting sleep schedules** based on sleep diary data to enhance sleep efficiency.

Session 5- Review and Consolidation

- **Duration:** 30–60 minutes

- **Objectives:**
- **Assess improvements and remaining challenges** in sleep patterns.
- **Reinforce** the application of techniques learned in previous sessions.
- **Discuss strategies for maintaining progress and preventing relapse**.

Session 6 – Follow-up Session(s) as needed

- **Duration**: 30–60 minutes
- **Objectives**:
- Provide **ongoing support** and address any setbacks or new issues.
- **Adjust techniques and strategies** to align with evolving sleep patterns and life circumstances.

Throughout the therapy, **maintaining a sleep diary is crucial**. It helps track progress, identify patterns, and tailor interventions effectively.

Consistency is key to successful outcomes

Three CBTi Programs

CBTi Coach app

https://www.veterantraining.va.gov/apps/insomnia/index.html

Mysleepwell.ca

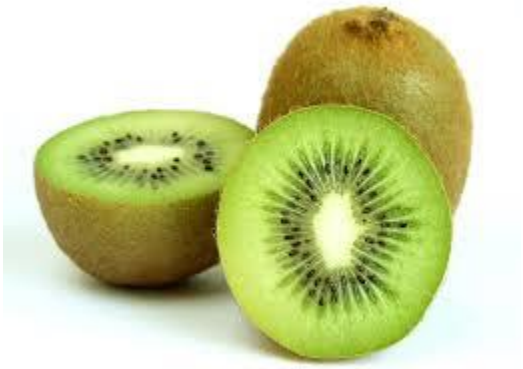
Non-Prescription Sleeping Aids

Herbal Remedies

- Magnolia Bark
- Passion Flower
- Lemon Balm
- Barley Grass Powder
- Ashwagandha
- Valerian Root
- Lavender
- Chamomile
- Saffron

Other Foods to Consider before bedtime

- Walnuts
- Tart Cherry Juice
- Bananas
- Turkey
- Fatty Fish
- Almonds
- Kiwi Fruit



Foods that can keep you awake

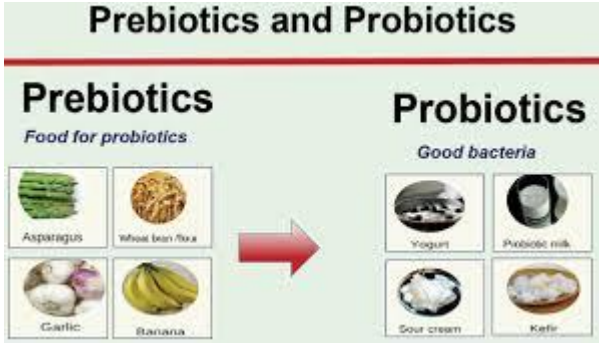
- Dark Chocolate
- Chocolate cake
- Raw Vegetables
- Aged cheese
- Ice cream
- Tomatoes
- Chili
- Cured Meats
- French Fries
- Sugary cereals
- Red Meat

Over the Counter options

- **Antihistamines (Diphenhydramine 25 – 50 mgm)**
  - Can cause mental & cognitive changes, motor impairment
  - Sedation may carry over until daytime

- **Melatonin (1-10mgm)**
  - MI (hypnosis) M2 (circadian rhythm) M3 (retina)
  - May improve sleep onset + maintenance

- **Natural Light / Light box**
- **Vitamin D 1000iu**
- **Magnesium 250-500mgm**
- **Fish Oil 1000mgm 2x / day**
- **Prebiotics**
  - Fibres that promote microbe growth in the gut: Increases short chain FAs



Foods that are high in prebiotics (undissolved fibres)

- Onions
- Garlic
- Asparagus
- Oats (Bran)
- Leeks
- Lentils
- Jerusalem artichokes
- Unripe bananas
- Apples
- Flax seeds







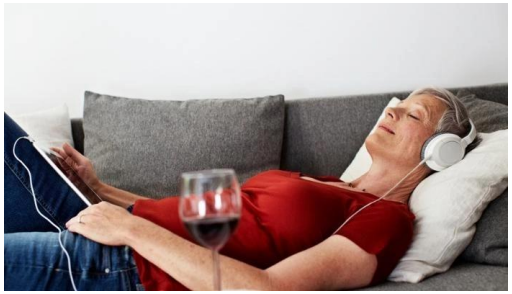



Cannabis and sleep

- Low-dose cannabis use appears to
  - decrease sleep onset latency
  - increases slow wave (Stage 3&4) sleep…..
- …. But it also
  - Decreases REM sleep (less dreaming).
  - Decreases total sleep time
  - ? Cognitive dulling
- Current evidence is mostly subjective

Alcohol and sleep

- Can increase sleep apnoea
- Increases sleep fragmentation
- REM Supression
- REM Rebound (after about 5 hours)
- Increases Restless Leg Syndrome



Medication for Insomnia

Medications to consider

- **BZD agonists (z-drugs)**
  - Zolpidem 5-15 mgm
  - Zopiclone 2.5 – 10 mgm
  - Zaleplon 5-20 mgm
- **Benzodiazepines**
  - Temazepam 7.5 – 30 mgm
  - Lorazepam 0.5 – 1.0 mgm
  - Alprazolam 0.25 – 1.0 mgm
- **Anti-depressants**
  - Doxepin 3-6 mgm
  - Trazodone 25-100 mgm
  - Amitriptyline 25 – 100 mgm
  - Mirtazapine 7.5 - 15 mgm
- **Orexin-Receptor Antagonists**
  - Lemborexant 5 –10 mgm
  - Suborexant 10 – 20 mgm

- **Neuroleptics**
  - Quetiapine 25-100 mgm
  - Loxapine 10 – 20 mgm
- **Gabapentin** 600 – 1800 mgm
- **Prazosin** 1-7 mgm
- **Pregabalin** 75 – 300 mgm
- **Clonidine** 0.1 – 0.3 mgm
- **Hydoxyzine** 50 – 100mgm
- **Melatonin agonists**
  - Ramelteon 4-8 mgm

Choice of Agent 2017 AASM Guidelines

Sleep Onset Insomnia

- Zolpidem
- (Ramelteon)
- Temazepam
- Zopiclone
- Lorazepam

Choice of Agent 2017 AASM Guidelines

Sleep Onset Insomnia

- Zolpidem
- (Ramelteon)
- Temazepam
- Zopiclone
- Lorazepam

Sleep Maintenance Insomnia

- Doxepin
- Zopiclone
- Temazepam
- Zolpidem
- Lemborexant
- Lorazepam
- Trazodone

Choice of Agent

Seniors

- Doxepin
- Zolpidem / Zopiclone
- Trazodone

- Temazepam / Lorazepam

- Melatonin

Choice of Agent

Seniors

- Doxepin
- Zolpidem / Zopiclone
- Trazodone

- Temazepam / Lorazepam

- Melatonin

Pain

- Gabapentin
- Nortriptylene
- Duloxitene
- Temazepam / Lorazepam
- Zolpidem / Zopiclone
- Topirimate
- Trazodone
- Pregabalin

Guidelines when using medication

- Manage the relationship
  - Don’t feel pressured into doing ”something”
  - Education ie re tolerance / psychological dependency
  - Clear contract ie duration
- Sleep hygiene and CBTI first or in combination
- Use the minimum effective dose
- Watch for psychological dependency

Things you can do to help your sleep

While there is no single thing you can do that will guarantee a good night's sleep, doing some or all of these will help you to improve your sleep. But you need patience as some of these can take a week or two before you see their benefits

1) Maximise the time you spend in daylight during the day

2) Increase your physical activity during the day

3) Have a consistent bed time and bedtime routine

4) Create a cool, comfortable sleep friendly environment, including your mattress & pillows, and block out light and noise if it disturbs your sleep

5) Avoid using electronic screens (blue light) in the bedroom or in the hour before bed

6) Avoid caffeine, alcohol, large meals and strenuous physical activity in the 3 hours before bedtime

7) Use simple relaxation exercises such as 4-7-8 just before bed. Breathe out and then breathe in through your nose as you count to 4, hold your breath and count to 7, and exhale and count to 8. Repeat this 3 times.

8) Keep naps to a minimum – and for no more than 20 minutes

9) If you can't get to sleep don't fight it. Get up and do something relaxing and return to bed when you're feeling sleepy

10) Try eating 2 kiwi fruits before bedtime

11) Use **pre**biotics (during the day) – foods that contain them (onions, leeks, garlic, green bananas, apples, oats, flax seeds, asparagus, Jerusalem artichokes, lentils) or capsules / powder

MAKE SLEEP A PRIORITY IN YOUR LIFE AND ADJUST YOUR OTHER ROUTINES WHERE NECESSARY. DON'T ALWAYS SACRIFICE SLEEP TO ENABLE YOU TO MEET YOUR OTHER COMMITMENTS

In Summary……

- Sleep is an active process – Not just “not awake”
- Important for physical and emotional wellbeing
- Part of the integrated treatment of all problems
- Needs to be seen as a priority, not the first thing to sacrifice
- Can be very hard to treat
- Give the person options / choices so they feel in control
- Always include tips for sleep hygiene
- Start with CBTI
- Not much evidence about the effectiveness of medications
- Keep drug therapy brief

- **Look after your own sleep**

On-Line Self Help Resources

- www.mysleepwell.ca
- css-cs.ca/resources/brochures
- www.sleepfoundation.org
- www.aasmnet.org
- www.bettersleep.org
- www.sleepresearchsociety.org
- www.sleepandhealth.com
- www.kidzzzsleep.org

Web Sites providing lists of free Sleep apps

- https://positiveroutines.com/free-sleep-apps/
- https://www.womenshealthmag.com/uk/health/sleep/g25458488/best-apps-insomnia/
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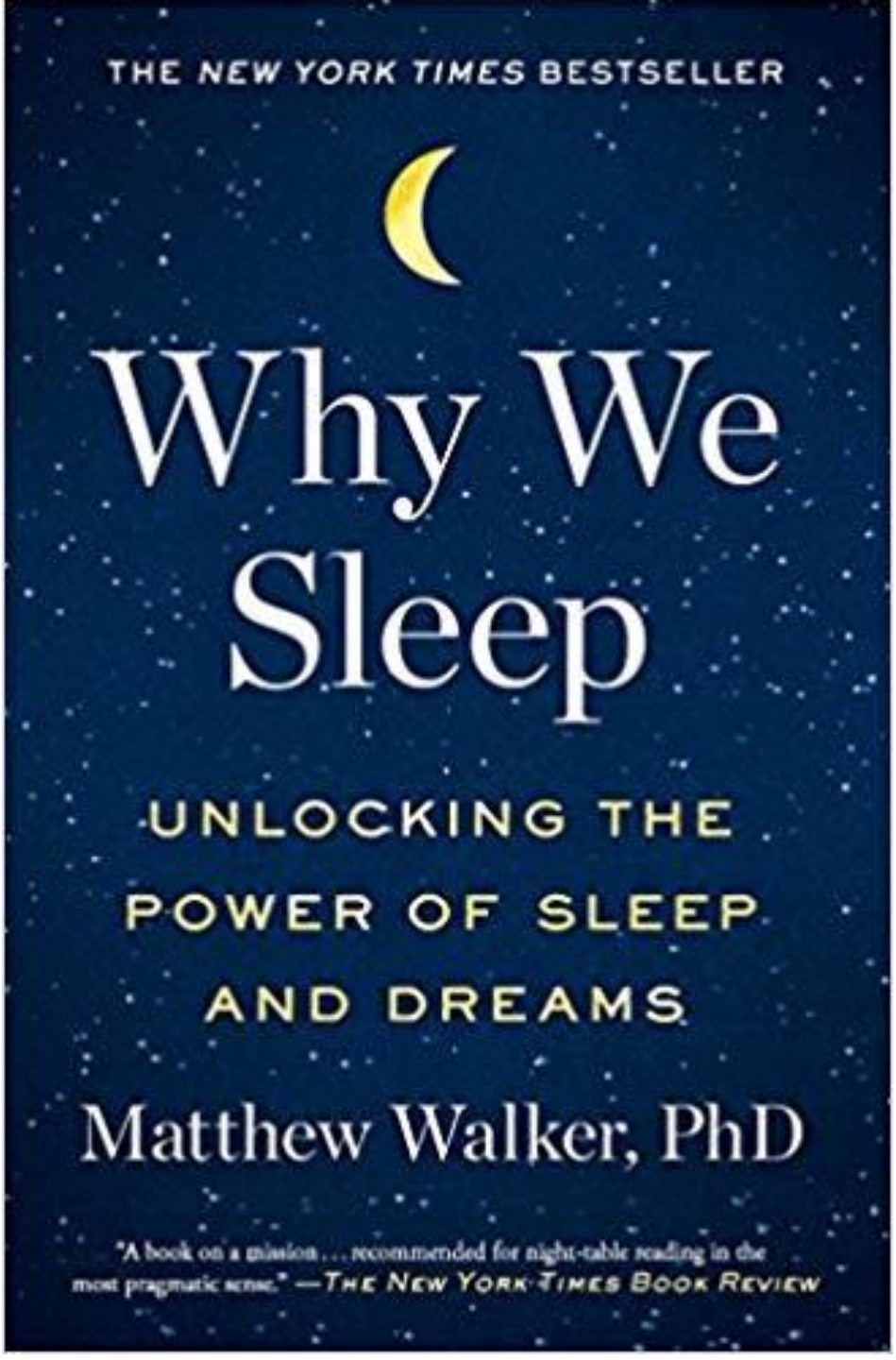
THE NEW YORK TIMES BESTSELLER
Why We Sleep
UNLOCKING THE POWER OF SLEEP AND DREAMS
Matthew Walker, PhD
"A book on a mission . . . recommended for night-table reading in the most pragmatic sense." —THE NEW YORK TIMES BOOK REVIEW

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TOTAL SCORE		

A score of 10 or greater indicates a possible sleep disorder. Take the completed form to your doctor.

The Sleep Council

Sleep Diary: **END OF DAY**

Complete at the end of the day

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
Day of the week							
How many caffeinated drinks did you have BEFORE 5pm?							
How many caffeinated drinks did you have AFTER 5pm?							
How many alcohol units did you have BEFORE 5pm?							
How many alcohol units did you have AFTER 5pm?							
In minutes, how much exercise did you do today BEFORE 9pm?							
In minutes, how much exercise did you do today AFTER 9pm?							
Have you taken any medications today? And if so, what.							
Did you have a nap during the day or evening and for how long? (in minutes)							
Throughout the day have you felt any of the following: Grumpy Impatient Tired Moody Unable to concentrate							
In the hour before bed what has your bedtime routine included?							

The Sleep Council

Sleep Diary: **MORNING**

Complete each morning

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
Day of the week							
What time did you go to bed last night?							
What time did you wake this morning?							
How long did it take you to first fall asleep (in minutes)?							
Did you fall asleep: Easily After some time With difficulty							
How many times did you wake in the night?							
How long were you awake during the night in total?							
How long did you sleep last night in total?							
What disturbed your sleep? (physical or mental factors such as stress, worry, noise, lights, comfort etc)							
How would you rate your quality of sleep from 1-5? (with 1 being very poor and 5 being very good)							
How do you feel this morning: Refreshed OK Lethargic							
Any other notes							

my SLEEP TRACKER

MONTH of

JAN FEB MAR APR MAY JUN
JUL AUG SEP OCT NOV DEC

TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
7 PM																															
8 PM																															
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5 AM																															
6 AM																															
7 AM																															
8 AM																															
9 AM																															
TOTAL																															

Hackensack Meridian *Health*

Sleep Diary ᶻᶻZ

DAY OF THE WEEK							
DATE							
1 What time did I get into bed?							
2 When did I try to fall asleep?							
3 When did I actually fall asleep?							
4 How many times did I wake up?							
5 How long did it take me to go back to sleep?							
6 When did my alarm go off?							
7 When did I get out of bed?							
8 Rate quality of sleep (1-10)							

Set Bed Time: _____

Set Rise Time: _____

Average sleep duration: _____

Average sleep quality: _____

	First day	*Second day*	*Third day*	*Fourth day*
Complete in morning				
Bedtime (date/time)	10:45 p.m. (4/10)			
Rise time (date/time)	7:00 a.m. (4/11)			
Estimated time to fall asleep	30 minutes			
Estimated number of awakenings and total time awake	5 times 2 hours			
Estimated amount of sleep obtained	4 hours			
Complete at bedtime				
Naps (number, time, and duration)	1 at 3:30 p.m. 45 minutes			
Alcoholic drinks (number and time)	1 drink at 8:00 p.m. 2 drinks at 9:00 p.m.			
List stresses of the day	Flat tire Argued with son			
Rate how you felt today 1 = Very tired/sleepy 2 = Somewhat tired/sleepy 3 = Fairly alert 4 = Wide awake	2			
Irritability level 1 = None 2 = Some 3 = Moderate 4 = Fairly high 5 = High	5			
Medications				

Things you can do to help your sleep

While there is no single thing you can do that will guarantee a good night's sleep, doing some or all of these will help you to improve your sleep. But you need patience as some of these can take a week or two before you see their benefits

1) Maximise the time you spend in daylight during the day

2) Increase your physical activity during the day

3) Have a consistent bed time and bedtime routine

4) Create a cool, comfortable sleep friendly environment, including your mattress & pillows, and block out light and noise if it disturbs your sleep

5) Avoid using electronic screens (blue light) in the bedroom or in the hour before bed

6) Avoid caffeine, alcohol, large meals and strenuous physical activity in the 3 hours before bedtime

7) Use simple relaxation exercises such as 4-7-8 just before bed. Breathe out and then breathe in through your nose as you count to 4, hold your breath and count to 7, and exhale and count to 8. Repeat this 3 times.

8) Keep naps to a minimum – and for no more than 20 minutes

9) If you can't get to sleep don't fight it. Get up and do something relaxing and return to bed when you're feeling sleepy

10) Try eating 2 kiwi fruits before bedtime

11) Use **pre**biotics (during the day) – foods that contain them it (onions, leeks, garlic, green bananas, apples, oats, flax seeds, asparagus, Jerusalem artichokes) or capsules

MAKE SLEEP A PRIORITY IN YOUR LIFE AND ADJUST YOUR OTHER ROUTINES WHERE NECESSARY. DON'T ALWAYS SACRIFICE SLEEP TO ENABLE YOU TO MEET YOUR OTHER COMMITMENTS

HEALTHY SLEEP HYGIENE IN KIDS

For the first time, sleep was included in the 2016 ParticipACTION Report Card on Physical Activity for Children and Youth.

Research shows that almost a third of Canadian children and teenagers aren't getting enough sleep each night. Those that are getting enough sleep may not be getting good quality sleep and the negative implications of poor sleep may impact other areas of their lives. For example, too little sleep is associated with excess body weight, lower academic achievement, and shorter attention span.

So what can you do? That's where sleep hygiene comes in. Sleep hygiene describes the habits and practices that are conducive to sleeping well on a regular basis. Below are tips to help give children and teens the good quality rest they need.

GENERAL TIPS FOR HAVING HEALTHY SLEEP HYGIENE

Go to bed and wake up at the same time every day (even on the weekends!)

Don't go to bed feeling hungry, but also don't eat a heavy meal right before bed

Avoid caffeine consumption (e.g., coffee, soft drinks, chocolate) starting in the late afternoon

Develop a relaxing routine before bedtime – ideas include bathing, music, and reading

Expose yourself to bright light in the morning – sunlight helps the biological clock to reset itself each day

Reserve your bedroom for sleeping only – keep cell phones, computers, televisions and video games out of your bedroom

Make sure your bedroom is conducive to sleep – it should be dark, quiet, comfortable, and cool

Exercise regularly during the day

Sleep on a comfortable mattress and pillow

Don't have pets in your bedroom

The full 2016 Report Card and additional tools and resources are available online at www.participACTION.com/reportcard

THANK YOU!

PLEASE FILL OUT YOUR SESSION EVALUATION

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