Sleep Disruption after Cancer: Tips and Tools to Regain Healthy Sleep

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OVERVIEW

- Why discuss sleep?
  - Frequency sleep disruption
  - Causes of sleep disruption
- What can be done to address persistent sleep disruption after cancer?
- Take home pointers

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Why?

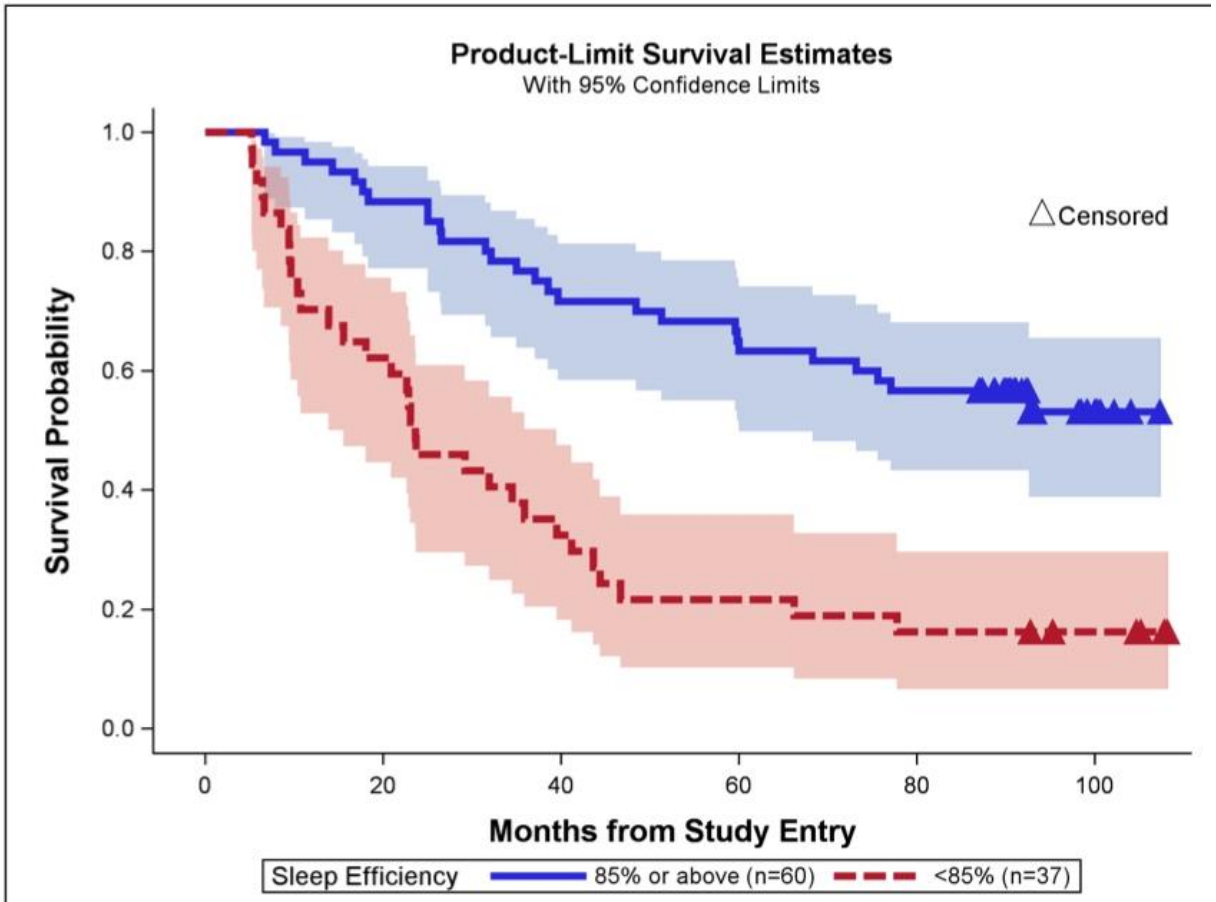

Figure 1—Sleep efficiency and survival in women with advanced breast cancer. Sleep efficiency of 85% or above is shown in dark blue, associated 95% confidence interval is shown in light blue. Sleep efficiency of less than 85% is shown in red and the associated confidence interval is shown in light red. Censored data are shown in triangles.

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Palesh et al 2014

WHY TALK ABOUT SLEEP?

Sleep disturbances affect:

- Physical symptoms
- Coping – stress/mood
- Ability to concentrate
- Day to day functioning
- Quality of Life
- FATIGUE

Sleep disturbances may represent a treatable sleep disorder

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How frequent are sleep disturbances in and after cancer?

- Sleep Disturbances are common within 6 months of cancer treatment- up to 95% of patients!

- Insomnia is more common in women with breast cancer and BCS (37.8%) than other types of cancer (though still pretty common there too, lowest was GU 18%)

  - Also common:
    - Fatigue
    - Sleepiness
    - Restless leg

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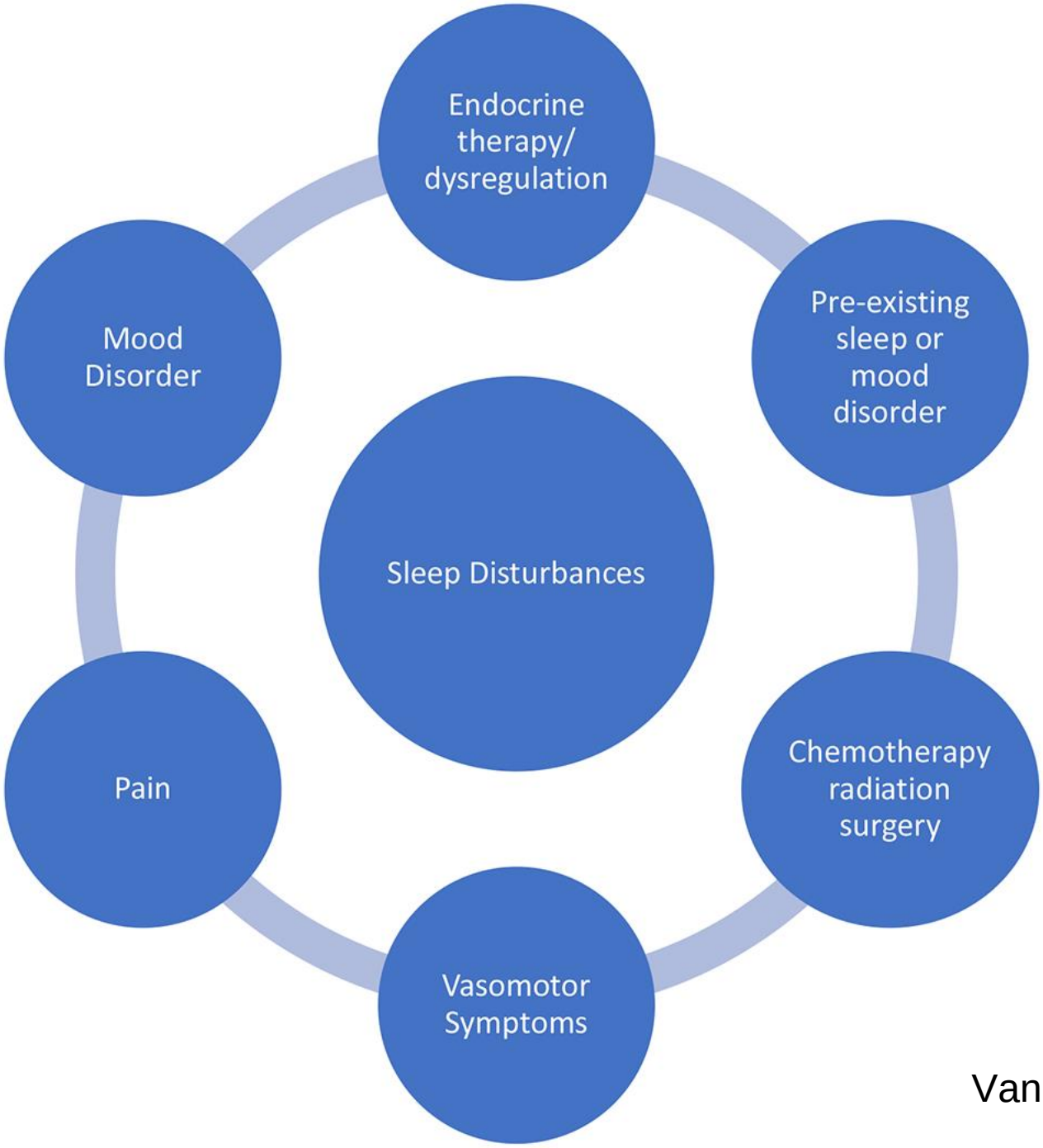
Davidson et al. 2002; Buttner-Teleaga et al. 2021



Van Dyk et al 2021

Insomnia frequency

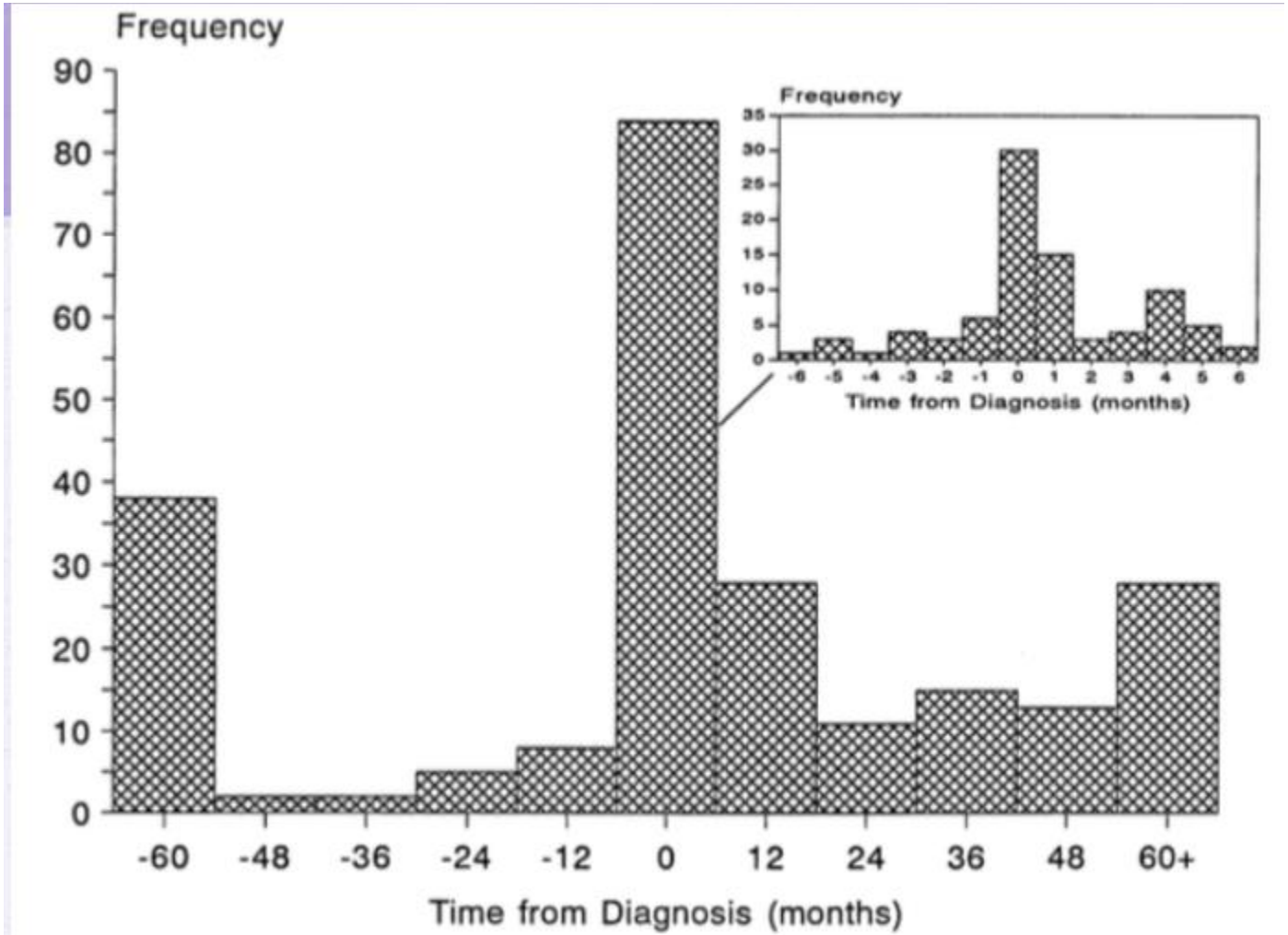


Fig. 1. Frequency distribution of time from cancer diagnosis to start of insomnia ($N = 234$).

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Davidson et al. 2002

INSOMNIA

- Difficulty falling asleep, staying asleep (returning to sleep), waking too early
- Next day impairment
- 3x/wk for >3 months= chronic

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EVOLUTION OF INSOMNIA

- 173 females w BRCA
- Insomnia or Symptoms:
  - Pre-diagnosis: 25%
  - Time of diagnosis: 46%
  - 12 months: 50%
- Risk of persisting?
  - Pre-diagnosis ISI
  - Chemotherapy

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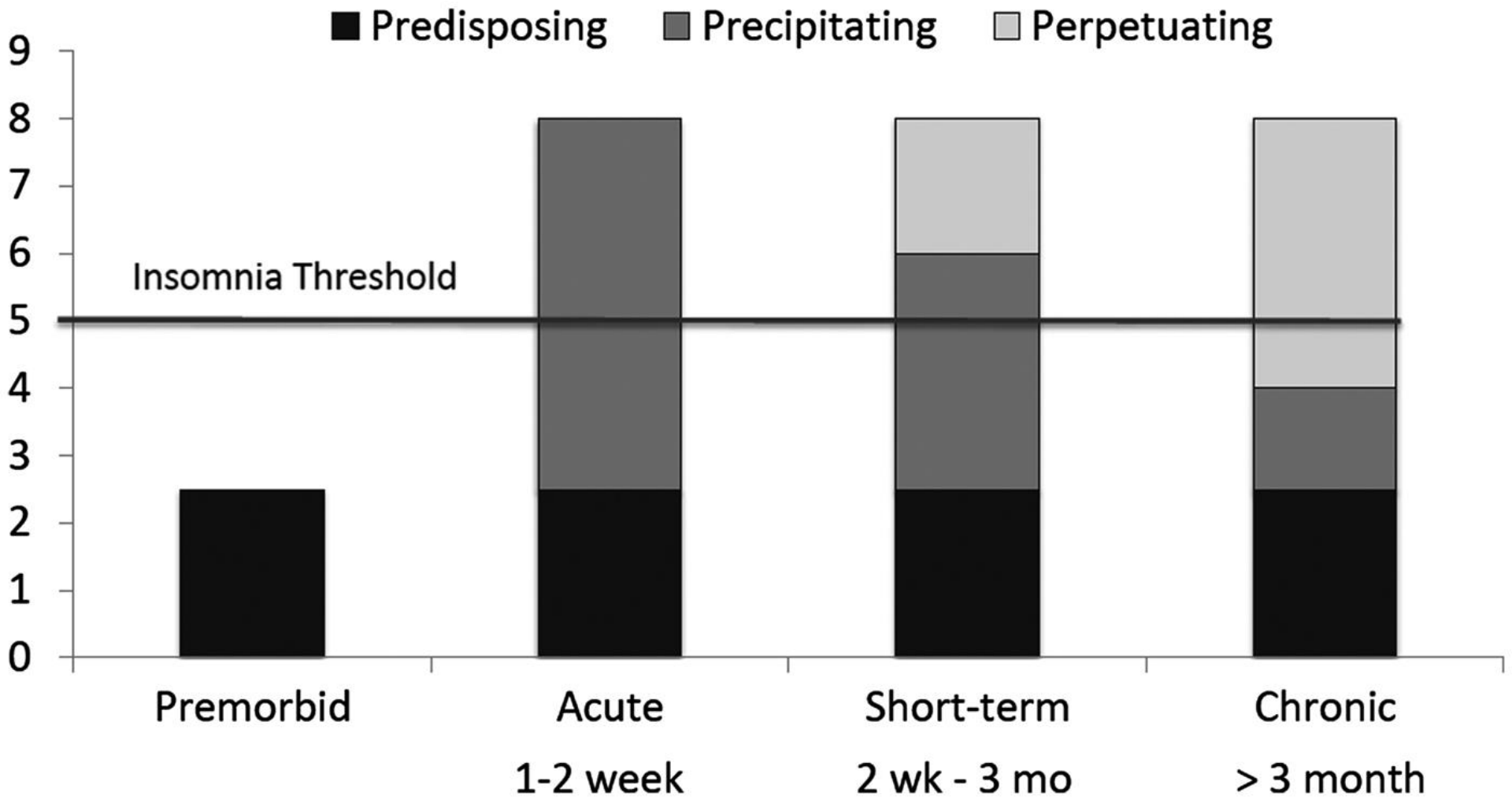
Fleming et al. 2019

WHY PERSISTS



Garland SN, Barg FK, Cakouros B, Gehrman P, DuHamel KN, Mao JJ 2018

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Sleep disruption without cancer!

	BRCA 1/2 +	BRCA 1/2 (-)	Controls
PSQI	7.29	3.94	4.21
Actigraphy - SL - SE%	 - 12.23 - 94.46	 - 5.41 - 96.8	 - 9.44 - 97.26

BRCA 1/2 53% reported sleep problems, with higher self reported sleep latency and lower sleep efficiency

* and sleep quality correlated w fatigue symptoms

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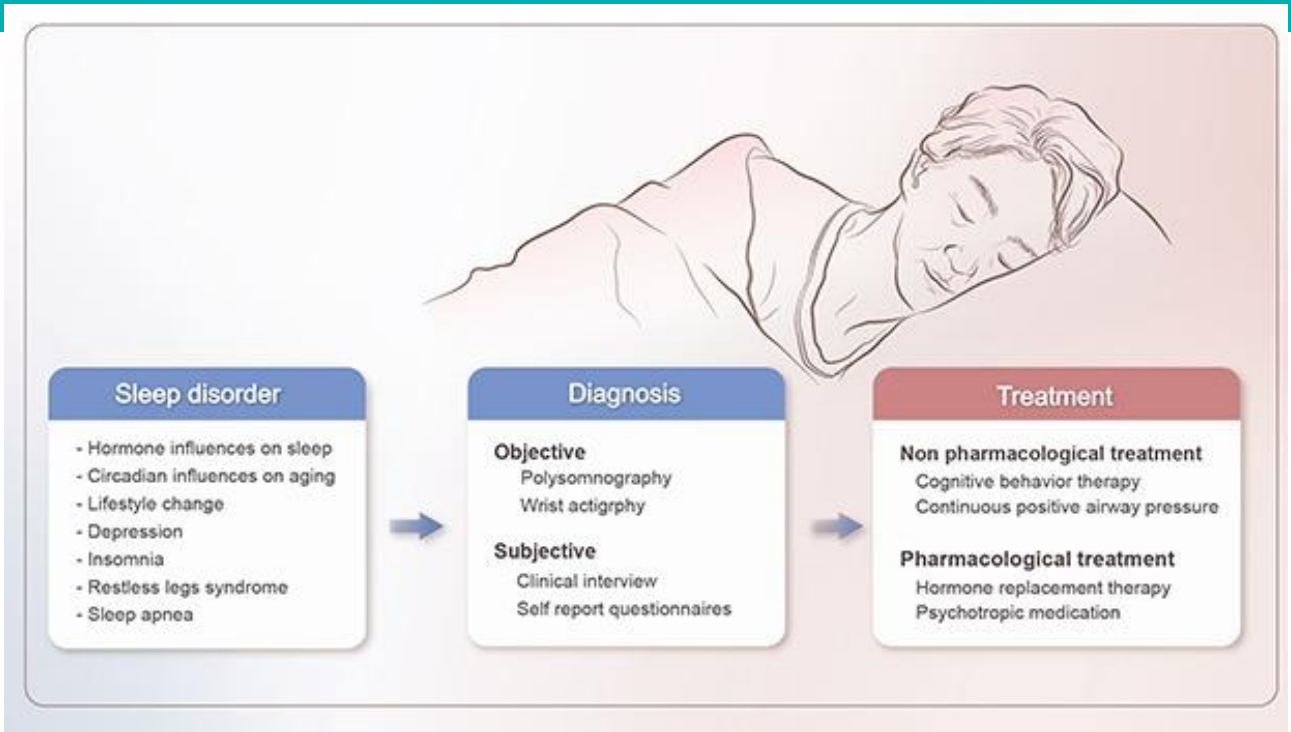
Shochat and Dagan, 2010

Other sleep issues and menopause



- Worsened OSA
  - Progesterone respiratory stimulant, weight gain
    - Mood and anxiety disorders

Sutter Health —> estrogen and neurotransmitters

MENOPAUSAL CHANGES

- Vasomotor symptoms
  - Sympathetic revving
  - Usually resolves within 1-2 yrs of menopause
  - Treatment exacerbates

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TAMOXIFEN

- Estrogen antagonist at breast cancer cells
  - Hot flushes 86%
  - Sleep disruption 55%

  - Sleep disruption persists in those on high dose after discontinuation (21%), where as depressive sx resolved completely

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Mourits et al. 2002; Van Dyk 2021

FATIGUE

- Causes:
  - Pain
  - Stress
  - Menopause
  - Anemia
  - Depression/anxiety
  - Sleep habits
  - Sleep disorders
- Radiation
- Chemo
- Weight loss

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BEATLES

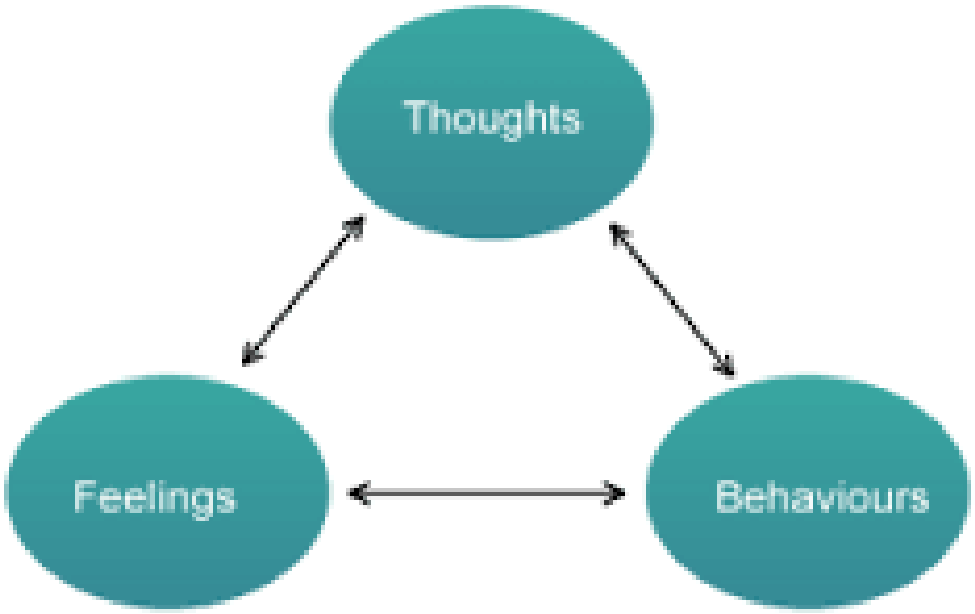
Capitol RECORDS

HELP!

HELP! · THE NIGHT BEFORE · YOU'VE GOT TO HIDE YOUR LOVE AWAY · I NEED YOU

Cognitive Behavioral Therapy for Insomnia

- A program of "relearning" how to sleep
- Targets the thoughts and behaviors that interfere with sleep
- Retrain your brain!



CBT model demonstrating the reciprocal influence that thoughts, feelings and behaviours can have on each other.

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Cognitive Behavioral Therapy for Insomnia

- Review:
  - Reduce sleep latency, wake after sleep onset
  - Increase sleep efficiency, total sleep time
  - Reduce Insomnia Severity Index, depression, anxiety and fatigue- increase quality of life
- Meta-analysis:
  - Large effect size (0.86) post intervention
  - Moderate effect size (0.55) at follow up

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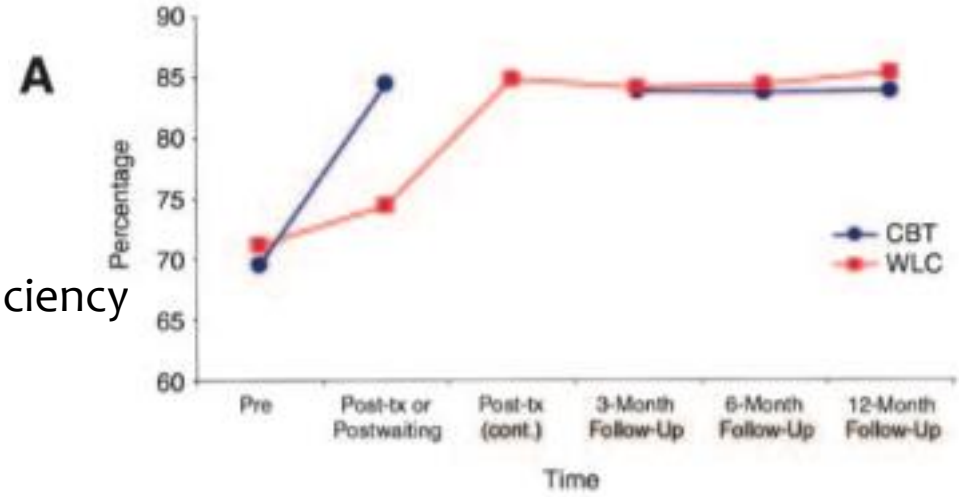
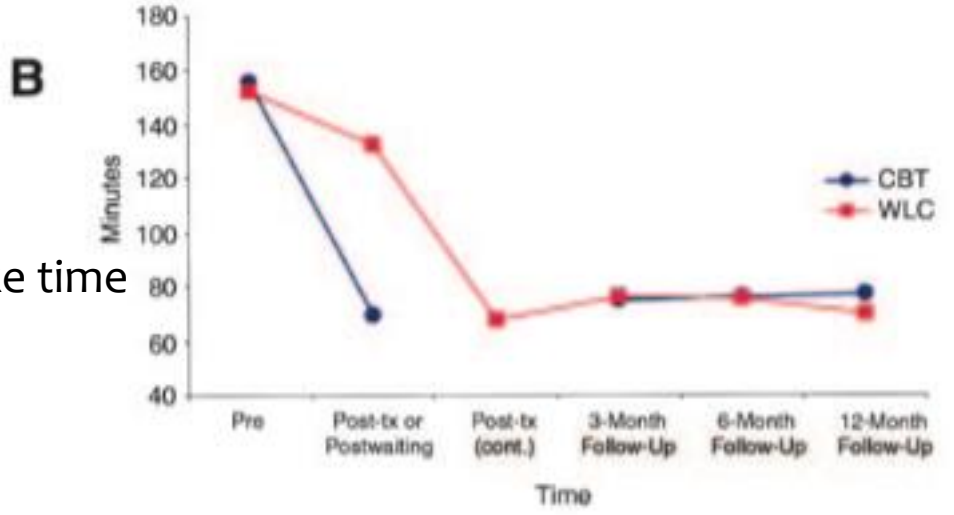
Garland et al. review 2014; Nissen 2024

CBTI

Sleep efficiency



Total wake time



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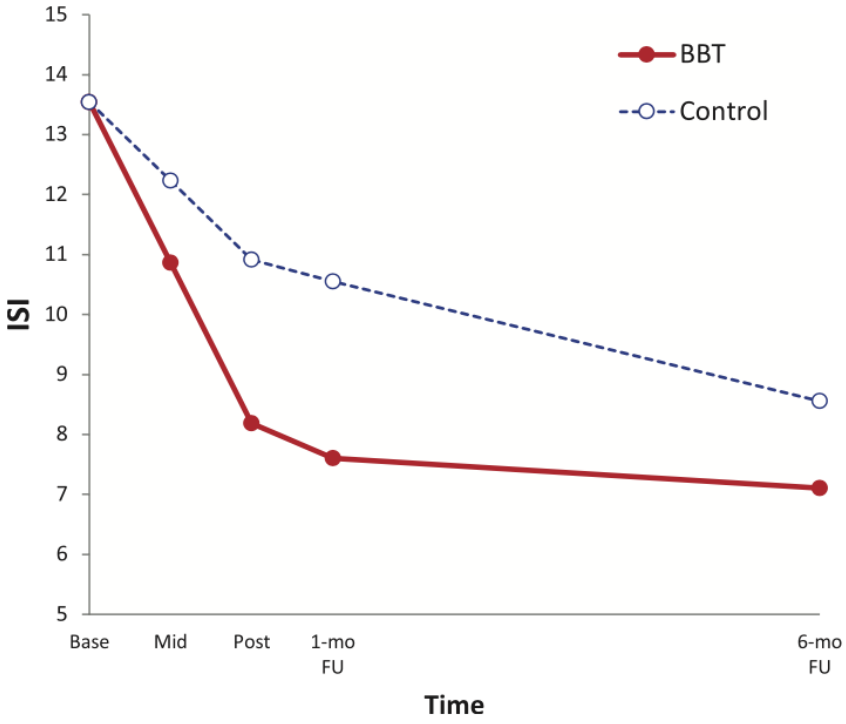
Savard et al. 2005

MOSAIC trial

ADDRESSING INSOMNIA DURING CHEMOTHERAPY

BBT-CI v. Sleep Hygiene control
- initial sessions during treatment
- 4x 15 min phone sessions

Modified Protocol:
Greater emphasis on encouraging physical activity, exposure to daylight; also impact of circadian disruption in causing cancer (light, meal timing), behavioral activation
No sleep restriction (compression)



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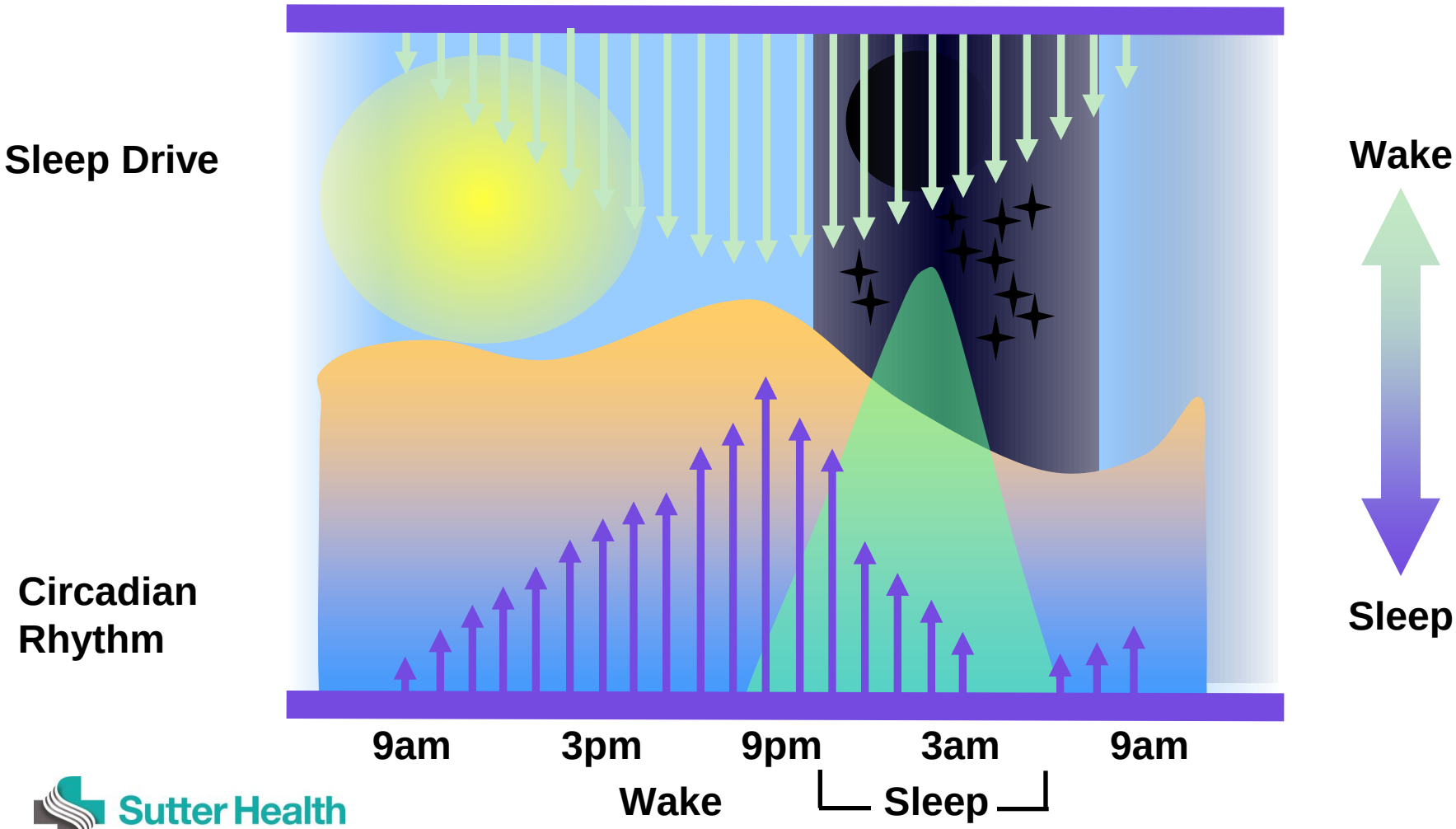
Palesh et al. 2020



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Adapted from Edgar DM, et al. *J Neurosci*. 1993;13:1065-1079. Courtesy of Phyllis C. Zee, MD, PhD.

International Agency for Research on Cancer

World Health Organization

IARC MONOGRAPHS CLASSIFICATION OF NIGHT SHIFT WORK

Night shift work is PROBABLY CARCINOGENIC TO HUMANS (Group 2A)

Limited evidence in humans. Sufficient evidence in experimental animals.

The *IARC Monographs* classification indicates the level of certainty that an agent can cause cancer (*hazard identification*).

Positive associations have been observed between night shift work and cancers of the:

Night shift work includes both working at night and working in a job that involves rapidly crossing many time zones.

Specific types of workers

Higher percentages of night shift workers are seen in

Circadian Rhythms and Cancer

- Graveyard shift associated with increased risk for breast cancer (C
  - Trend to increased risk with increased years of work, or increased
- Nurse's Health Study
  - >30 yrs of nightshift work, risk increase 36%
- Risk reduced in blind women (no change to melatonin levels by lig

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Davis et al. 2001; Schernhammer et al. 2001

Light Enhanced CBTI

Delivered during chemotherapy
- one face to face visit + phone call/emails following
  - Luminette light glasses in brightest setting x 20 min qam

Reduced ISI by 5
- less sleep related impairment
- Less fatigue by 4.7

Bean et al 2021

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Yoga for Insomnia

- Lack of physical activity with treatment can potentially exacerbate insomnia sx, but yoga can be gentle enough to do during treatment or after recovery
- Gentle/ Hatha/Restorative Yoga: - Improves sleep quality, reduced sleep latency/ WASO, less medication
- Data limited

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Mustian et al. 2014

Mindfulness Based Stress Reduction

- Compared MBSR to CBTI
- MBSR-
  - Education, meditation, yoga

- CBTI more effective for reducing:
  - Sleep latency
  - Insomnia severity
  - Dysfunctional beliefs about sleep
  - Improving sleep efficiency

- CBTI more effective immediately following Treatment, with MBSR gaining improvement Over time

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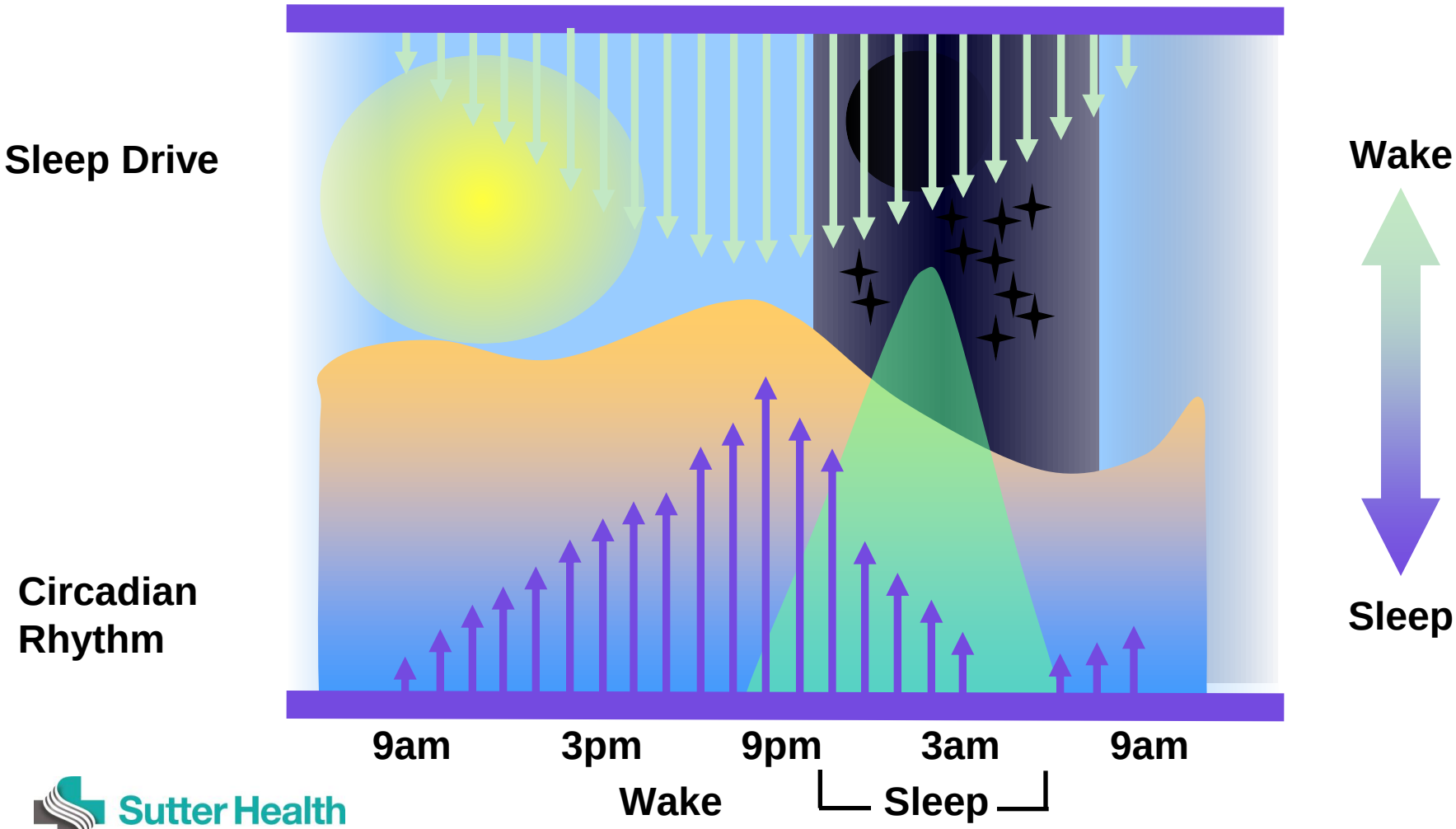
Garland et al. 2014



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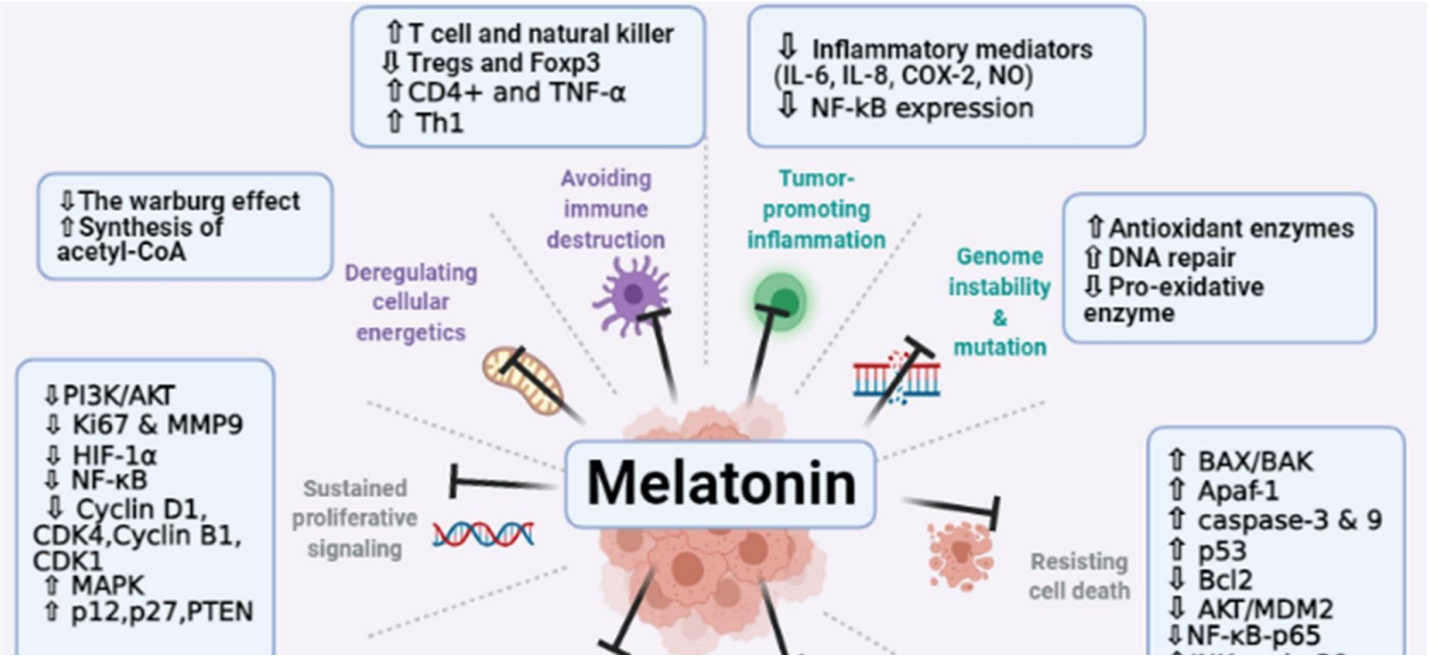
Melatonin

- Low levels of melatonin has been associated with breast cancer
  - Melatonin anti-oxidant/anti-inflammatory, immune modulating,
  - May modify cancer progression
- 10-20 mg in the evening
- RR 0.66, NNT 3-5
  - Breast cancer RR 0.48

Mills et al. 2005; Talib 2024

Melatonin



May According to a systematic review and meta-analysis of 21 clinical studies melatonin reduced thrombocytopenia, leucopenia, asthenia, nausea, vomiting, and hypotension

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Talib et al, 2021

Shifting Gears

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What to do to improve sleep

#1 Set a consistent WAKE time

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- consider Bright Light in the morning if struggling w fatigue

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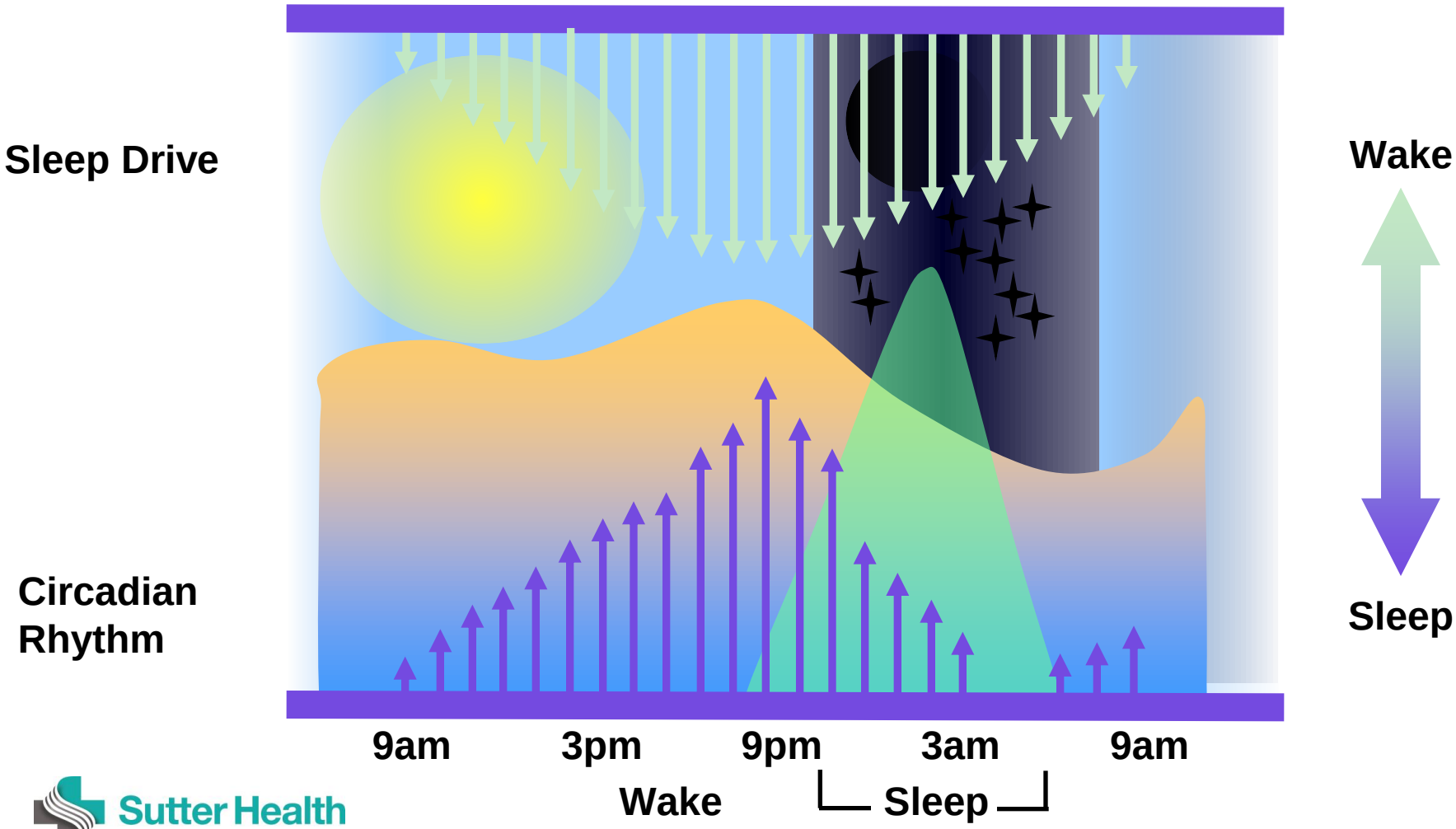

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What to do to improve sleep

#1 Set a consistent WAKE time everyday

- consider Bright Light in the morning if struggling w fatigue

#2 wait until you are SLEEPY to go to bed

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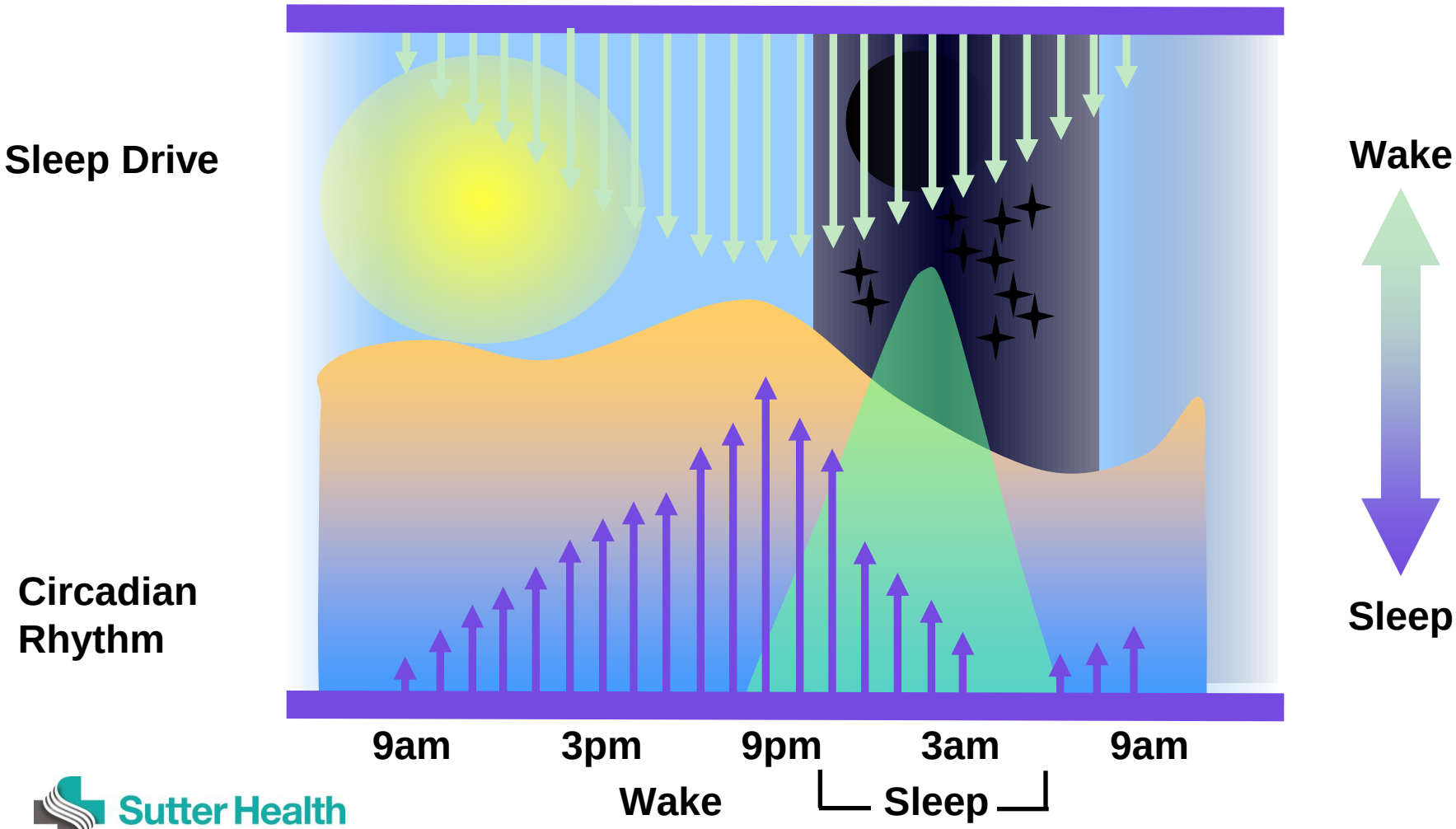

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- consider creating a wind down routine to train your brain to be ready to sleep

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Wind Down Routines

- Wind-down Time:
  - 1-2 hrs before bedtime

  - DON'T
    Use electronics
    - No work emails, projects etc
    - Avoid social media, limit TV

    Highly emotional content

  - DO
    - Create a relaxing routine
    - Read, journal, meditate, listen to music, craft, yoga, draw, play an instrume

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What to do to improve sleep

#1 Set a consistent WAKE time everyday

- consider Bright Light in the morning if struggling w fatigue

#2 wait until you are SLEEPY to go to bed

- consider creating a wind down routine to train your brain to be ready to sleep
- Try to limit naps, recognize the difference in fatigue v sleepiness

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What to do to improve sleep

#1 Set a consistent WAKE time everyday

#2 wait until you are SLEEPY to go to bed

#3 Stop Trying!

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What to do to improve sleep

#1 Set a consistent WAKE time everyday

#2 wait until you are SLEEPY to go to bed

#3 Stop Trying!

#4 Manage other side effects

- melatonin, magnesium, medications for hot flashes?

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Hot flashes

- Consider tracking symptoms: when (time of day what activity, eating, drinking, emotional state, duration

- Dress cool
- Exercise
- Manage stress

- consider medications:
  - Antidepressants, gabapentin

- Mind-body interventions:
  - Yoga, mindfulness, hypnosis

Van Dyk et al. 2021

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Evaluation?

OSA

RLS

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