THE ROLE OF SLEEP IN RECOVERY

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WHY SLEEP?

• Sleep problems are more common in patients with cancer
  • 30–50% of cancer patients compared with 15% of general population
  • 23–44% of patients have insomnia 2–5 years after the treatment
  • Only 15% may report to their providers
  • We spend about 36% of our lives asleep
WHY ARE SLEEP PROBLEMS MORE COMMON IN CANCER SURVIVORS?

• Tumors .... And problems persist
  • GI symptoms (nausea, constipation, diarrhea)
  • Bladder (irritation, being unable to control urine flow)
  • Fever
  • Cough
  • Pain
  • Itching
WHY ARE SLEEP PROBLEMS MORE COMMON IN CANCER SURVIVORS?

- Anxiety (about illness, future AND SLEEP)
- Medications
  - Hormones
  - Corticosteroids
  - Sedatives and tranquilizers
  - Anticonvulsants
  - Antidepressants
WHY SLEEP?

• Brain processing and memory consolidation
• Connection with mood (genetic link between poor sleep and mood)
• Immunity
• Metabolism and weight control
  • Sleeping fewer than 5 h/nigh increase chance of obesity 50%
• Restoration
  • Amyloid Beta clearance when we sleep only (no lymphatic system in the brain)
HOMEOSTATIC SLEEP DRIVE

• The longer you are awake, the sleepier you get
• Nap sets you back
CIRCADIAN PROCESSES

- Circadian mechanism: Timing mechanism of scheduling sleep in 24 hours
  - Endogenous period is 24 h 9 min (Duffy et al, 2011)
  - Resetting to 24 hours is done by LIGHT and less by nonphotic synchronizers (exercise, temperature, exogenous melatonin)
Circadian Sleep–Wake Cycle
CIRCADIAN RHYTHMS
EVENING STIMULATION/SLEEP HYGIENE

• Calming activities in the evening
• Warm shower but not immediately before bed
• Caffeine after 12 PM
• No TV in the bedroom (or other screens)
• Exercise no later than 5 PM but it is ok to stretch, do yoga – activities that do not increase body temperature too much
• Cool, dark bedroom
• Calming drinks (NOT alcohol)
BUT WHY NO SLEEP WHEN EAGER TO SLEEP?

• Sleep is a conditioned response to the stimulus of sleep environment
• Bed is source of increased arousal, frustration
INSOMNIA

Spielman, 1987

PREDISPOSING

PRECIPITATING

PERPETUATING
• Psychobiological Inhibition Model
  • Selective attention in development and maintenance of insomnia
  • Stress leads to arousals that leads to greater attention to sleep related cues

• Neurocognitive models
  • Conditioned cortical arousal with high frequency EEG activity
  • High frequency EEG activity = conditioned cortical arousal, memory formation that may explain sleep state misperception (wakefulness reported greater than EEG measures)
Thoughts, feelings, beliefs interfere with sleep, lead to maladaptive behaviors.

Insomnia due to worry about poor sleep and its effects leads to arousals, selective scanning of the internal milieu for threat cues and developing of counterproductive "safety behaviors" to maximize sleep.
WHY CAN’T I GET BACK TO SLEEP?

• Negative thoughts
• Time in bed without sleep – conditioned response

“I can't sleep. I think I'll get up and solve all my problems.”
AWAKE IN BED (STIMULUS CONTROL)

If still awake in 20–30 minutes, get up to read, listen to a podcast, etc.
MYTHS ABOUT SLEEP

You need less sleep when you grow older

You need 8 hours of sleep

Best sleep is continuous

Good sleep means waking up instantly energetic

Early to bed early to rise makes man healthy, wealthy and wise
PRESENTING SYMPTOMS/SIGNS
OSA

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<thead>
<tr>
<th>Presenting Symptoms/Signs</th>
<th>Men</th>
<th>Women</th>
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<tbody>
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<td>Snoring/Apneas</td>
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<td>Sleepiness</td>
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“Laugh and the world laughs with you, snore and you sleep alone” – Anthony Burgess
PREVALENCE
Obstructive Sleep Apnea (OSA)

![Prevalence of OSA (%) graph]

Sleep 2002; 25:412
OSA, STROKE, DEATH

• 1022 patients, 697 (68%) had OSA

• OSA increased the risk of stroke or death (hazard ratio, 1.97; 95 percent confidence interval, 1.12 to 3.48; P=0.01).
Sleep is the golden chain that ties health and body together

Thomas Dekker

Golden slumbers, Fill your eyes Smiles await you when you rise

The Beatles