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Strategies for Surviving the Night Shift



Behavioral Objectives

- Understand sleep physiology, the sleep-wake cycle and sleep architecture.
- Discuss the effects of fatigue and sleep deprivation.
- Discuss the effect of fatigue and sleep deprivation on patient safety.
- Identify three strategies for surviving the night shift with fatigue countermeasures.

The Audition of Dr. Brandon Rodgers



Dr. Brandon Rodgers
(10/30/87-6/11/17)



Sleep is a Necessity... Not a Luxury

- Children – Growth
- Adults – Maintenance
 - Alertness/performance
 - Memory, concentration and creativity
 - Better health



Are you Short on Sleep?

- A majority of American adults (63%) do not get the recommended eight hours of sleep needed for good health, safety, and optimum performance.



Facts on Sleep



- Sleep deprivation and sleep disorders are estimated to cost Americans over \$100 billion annually in lost productivity, medical expenses, sick leave, and property and environmental damage.

The Effects of Sleep Deprivation and Fatigue

Fatigue

An overwhelming sense of tiredness, lack of energy and feeling of exhaustion associated with impaired physical and/or cognitive functioning.

(Shen, Barbera & Shapiro, 2006)

The Effects of Sleep Deprivation Specific to Night Shift Nurses

- Health Implication
 - Cardiovascular disorders
 - High blood pressure
 - Gastrointestinal disorders
 - Peptic ulcers,
 - Indigestion,
 - Nausea
 - Diarrhea
 - Constipation
 - Obesity
 - Sleep apnea
 - Reproductive
 - Menstrual irregularities
 - Miscarriage and premature labor
 - Respiratory
 - Immunological
 - Decreased – susceptible to viral and/or bacterial infections

Extended Work Hours

- Difficulties staying awake on duty, reduced sleep times, and nearly triple the risk of making an error.
- Associated
 - increased musculoskeletal injuries,
 - more cardiovascular symptoms,
 - development of hypertension, and higher risks for injury.

Working Overtime

- Poorer perceived health,
- Increased neck and musculoskeletal discomfort,
- Increased risk for preterm birth,
- Diabetes,
- Cardiovascular disease,
- Increased morbidity and mortality,
- Higher rates of accidents.

Shifts Worked

- Safety
 - Reduced alertness – potentially compromise the safety of nursing staff.
 - Increased risk of having an accident at work.
 - Three times more likely to be injured in a work-related accident than day workers.
- Performance
 - Diminished response mechanisms that can result in impairment in performance and function (driving home).

Shifts Worked

- Fatigue is exacerbated with increased numbers of shifts worked
- Fatigue can be exacerbated with increased numbers of shifts worked
 - 2 % higher on the second morning/day shift
 - 7 % higher on the third morning/day shift, and
 - 17 % higher on the fourth morning/day shift than on the first shift.

Effects of Fatigue on Patient Safety

- Delayed reaction times.
- Delayed responses.
- Delayed thinking.
- Diminished memory.
- Failure to respond at the appropriate time.
- Impaired efficiency.
- Provision of false responses.

Effects of Fatigue on Patient Safety

- Patient errors increase according to the shift you work
 - 10-hour shift increase by 13%
 - 12-hour shift increase by 28%
- Patient errors increase the more nights you work
 - Error rate increase
 - 6% after the second night shift
 - 17% higher the third night shift
 - 36% by the fourth night shift

Effects of Fatigue on Patient Safety

- Medication errors
 - Nurses who reported an error or near miss obtained significantly less sleep than nurses who did not report an error or near miss (6.3 ± 1.9 hours versus 6.8 ± 1.7 hours).
 - 3.4 % chance of an error when nurses obtained 6 or fewer hours of sleep in the prior 24 hours and 12 or fewer hours of sleep in the prior 48 hours (i.e. 34 events per day)

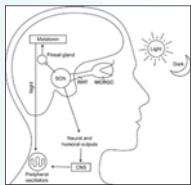


Case Presentation

Sleep 101: How Sleep Works

The Sleep/Wake Symphony


- Circadian Rhythms
 - Light
 - Time cues
 - Melatonin
- Homeostasis
 - Elapsed time since last sleep
 - Cumulative sleep debt



The diagram shows a profile of a human head with the brain highlighted. The hypothalamus is labeled, with arrows pointing to the pineal gland and the sleep/wake cycle. The pineal gland is shown producing melatonin. The sleep/wake cycle is depicted as a circle with 'Wake' and 'Sleep' phases. The diagram also shows the hypothalamus receiving input from the 'Hypothalamic and neural systems' and the 'Peripheral nervous system'.

Awake


Wake



The waveform shows a high-frequency, low-amplitude signal, characteristic of the awake state. The signal is irregular and has a high frequency, indicating a state of alertness.

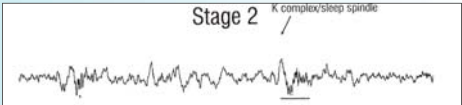
Non-REM Sleep

Stage 1



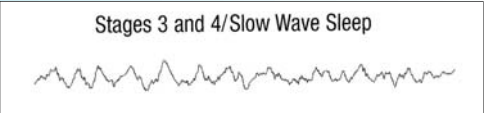
Non-REM Sleep

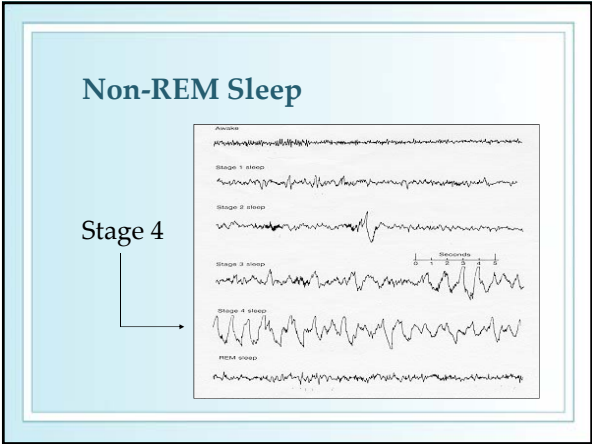
Stage 2 K complex/sleep spindles

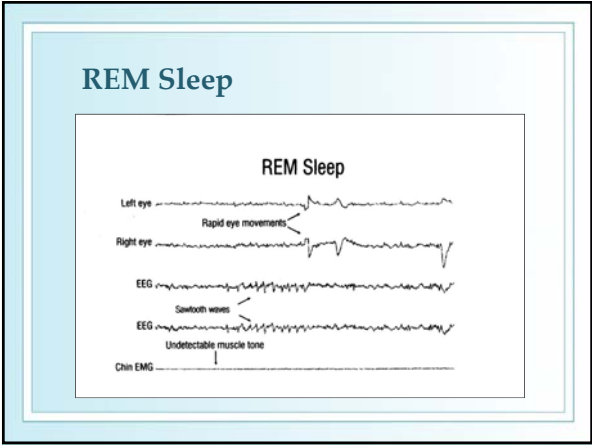


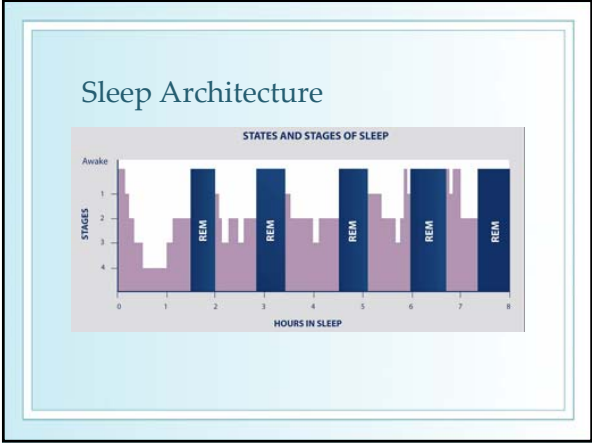
Non-REM Sleep

Stages 3 and 4/Slow Wave Sleep

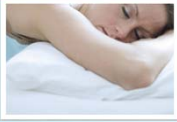








A Good Night Sleep



- Recognize the importance of sleep
- Adopt a healthy lifestyle
- Maintain good sleep habits
- Create the optimal sleep environment
- Watch out for sleep saboteurs
- Seek help for persistent sleep problems

Fatigue Management

- Rest breaks
- Napping
- Exercise
- Bright lights
- Pharmacologic measures

Fatigue Management Strategies: Preparing for the Shift

- Before starting the shift, staff should aim to be as physically and mentally prepared as possible.
- Being rested and refreshed before work is essential, and preparation should begin at home.

Fatigue Management Strategies: During the Shift

- Take scheduled breaks (two 15-minute breaks and one 30-minute break).
- The body is programmed to be least active between 3am and 6am.



Fatigue Management Strategies: During the Shift

- Bright lights such as that found from a desk lamp or an overhead light may maximize alertness and improve brain performance
- Effective ventilation and the availability of refreshments may also improve alertness.

Fatigue Management Strategies: During the Shift

- Maintain a healthy, well-balanced diet
 - High in protein and low in carbohydrates.
- Prevent dehydration and stave off feelings of hunger.
- Use caffeine as a stimulant to remain alert.
 - Avoid caffeine at least four hours before the end of a shift as its long-lasting effects may impair the ability to rest.

Fatigue Management Strategies:
After the Shift

- When driving home ... be cautious as reflexes will be slower and judgments may be impaired as a result of fatigue.
- It is important to try to sleep as soon as possible.
- Distractions that may increase alertness should be avoided.

Fatigue Management Strategies:
After the Shift

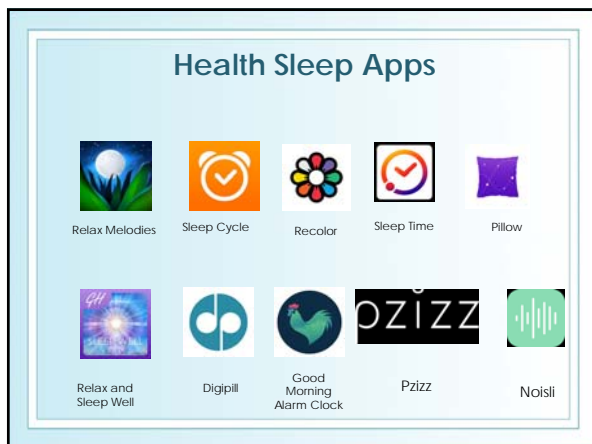
- Avoid alcohol and nicotine.
- To induce sleep the bedroom should be quiet, dark and well-aired.
 - Curtains should filter out all external light.
 - Ear plugs can be used to block out noise.
 - Telephones should be switched off or put in answer mode.

Fatigue Management Strategies:
After the Shift

- It is important to get back to a normal routine of sleeping and waking, and maintaining usual activities as soon as possible.
- Continue your sleep hygiene routine.
- On completion of the night-shift period, it may take several days or weeks for the individual's circadian rhythm to readjust.









Thank you.... And Sleep Tight

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Sleep Resource Centers

- American Academy of Sleep Medicine (AASM) <http://www.aasmnet.org>
- National Center on Sleep Disorders Research (NCSDR) <http://www.nhlbi.nih.gov/about/ncsdr/index.htm>
- National Sleep Foundation (NSF) <http://www.sleepfoundation.org>
- American Sleep Apnea Association www.sleepapnea.org
- Cleveland Clinic Sleep Disorder Center www.clevelandclinic.org/neuroscience/treat/sleep/
- Sleep Research Society www.sleepresearchsociety.org