

CONNECTION BETWEEN SLEEP AND WORK PERFORMANCE

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OBJECTIVES

UNDERSTANDING YOUR EPWORTH'S SLEEPINESS SCORE

WHY SLEEP IS IMPORTANT

THE CONSEQUENCES OF FATIGUE IN THE WORKPLACE

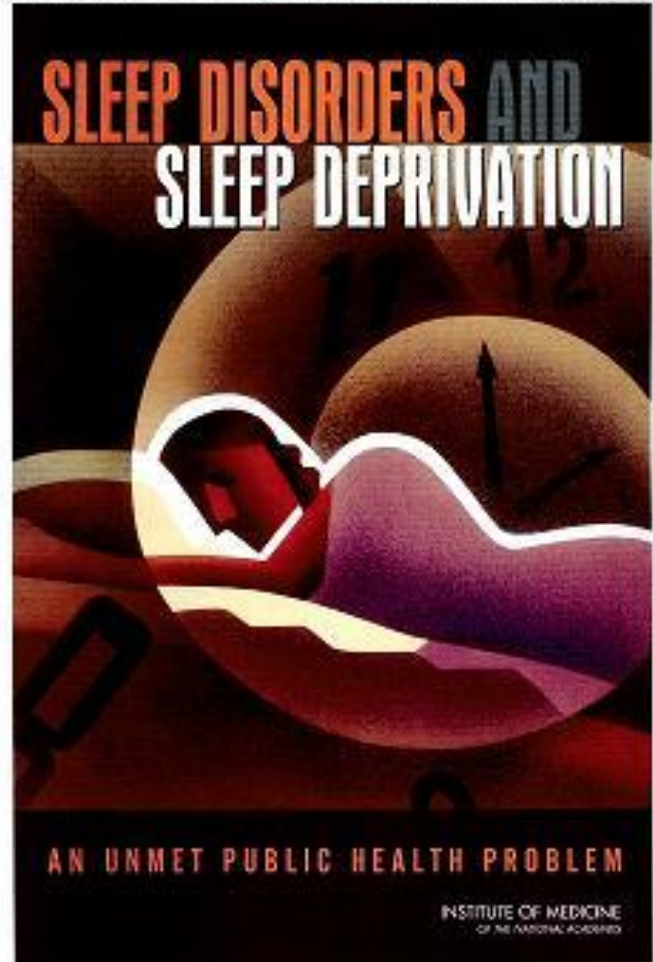
SHIFT WORK PERILS AND COUNTER MEASURES

COMMON SLEEP DISORDERS AND PROBLEMS

WHAT STRATEGIES YOU CAN DO



PREPUBLICATION COPY: UNCORRECTED PROOFS



INSTITUTE OF MEDICINE REPORT

“AN UNMET PUBLIC HEALTH PROBLEM”

SLEEP LOSS AND SLEEP DISORDERS REPRESENT AN UNDER-RECOGNIZED PUBLIC HEALTH PROBLEM

ASSOCIATED WITH A WIDE RANGE OF HEALTH CONSEQUENCES INCLUDING AN INCREASED RISK OF HYPERTENSION, DIABETES, OBESITY, DEPRESSION, HEART ATTACK, AND STROKE.

ALMOST 20 PERCENT OF ALL SERIOUS CAR CRASH INJURIES ARE ASSOCIATED WITH DRIVER SLEEPINESS.

HUNDREDS OF BILLIONS OF DOLLARS A YEAR ARE SPENT ON DIRECT MEDICAL COSTS RELATED TO SLEEP DISORDERS



SHIFT WORK

- MANY OF US WORK NIGHT SHIFT AND HAVE POOR SLEEPING HABITS
- IMPORTANT FOR HEALTH AND FUNCTIONAL CAPACITY.
- A LOSS OF SLEEP HAS BEEN SHOWN TO RESULT IN DISTURBANCES IN MANY BASIC BODILY FUNCTIONS
 - GLUCOSE METABOLISM
 - EXCRETION OF HORMONES
 - AUTONOMOUS NERVOUS AND IMMUNE SYSTEMS
 - DETRIMENTAL TO ALERTNESS AND COGNITIVE AND MENTAL FUNCTIONAL CAPACITY



EPWORTH SLEEPINESS SCALE

VALIDATED TOOL USED TO DETERMINE
DAYTIME SLEEPINESS



WHAT IS THE EPWORTH'S SLEEPINESS SCALE?

THE EPWORTH SLEEPINESS SCALE IS WIDELY USED IN THE FIELD OF SLEEP MEDICINE AS A SUBJECTIVE MEASURE OF A PATIENT'S SLEEPINESS.

WHEN YOU FINISH THE TEST, ADD UP THE VALUES OF YOUR RESPONSES. YOUR TOTAL SCORE IS BASED ON A SCALE OF 0 TO 24.

THE SCALE ESTIMATES WHETHER YOU ARE EXPERIENCING EXCESSIVE SLEEPINESS THAT POSSIBLY REQUIRES MEDICAL ATTENTION.



Sitting and reading

CHANCE OF DOZING

0-1-2-3



Watching television

CHANCE OF DOZING

0-1-2-3



Sitting inactive in a public
place-for example, a
theater or meeting

CHANCE OF DOZING

0-1-2-3



As a passenger in a car for
an hour without a break

CHANCE OF DOZING

0-1-2-3



Lying down to rest in the afternoon

CHANCE OF DOZING

0-1-2-3



Sitting and talking to someone

CHANCE OF DOZING

0-1-2-3



Sitting quietly after lunch
(when you've had no
alcohol)

CHANCE OF DOZING

0-1-2-3



In a car, while stopped
in traffic

CHANCE OF DOZING

0-1-2-3



Total score =

GRADING YOUR SCORE



INTERPRETATION

0-7 IT IS UNLIKELY THAT YOU ARE ABNORMALLY SLEEPY.

8-9 YOU HAVE AN AVERAGE AMOUNT OF DAYTIME SLEEPINESS.

10-15 YOU MAY BE EXCESSIVELY SLEEPY DEPENDING ON THE SITUATION.



NOW THAT
YOU KNOW
YOUR SCORE-
WHAT CAN
YOU DO?



CONSEQUENCES OF FATIGUE IN THE WORKPLACE

- 7,000 NURSES POLLED
- NURSES WORKING 12.5 HOURS OR LONGER ARE FOUND TO BE 3 TIMES MORE LIKELY TO MAKE AN ERROR.
- 80% FEEL TIRED AFTER WORK
- 55% FEEL TIRED AT WORK
- TYPICALLY, NURSES WORK MORE THAN 40 HOURS A WEEK.
- DURING A 28-DAY STUDY, EVERY NURSE INVOLVED WORKED AT LEAST ONE OVERTIME SHIFT.
- 2 OF 3 NURSES WORK 10 OR MORE OVERTIME SHIFTS IN 28 DAYS.



STATISTICS ON THE EFFECTS OF FATIGUE ON SAFETY

- RISK OF MEDICATION AND OTHER ERRORS INCREASES SIGNIFICANTLY AFTER EIGHT HOURS OF WORK AND IS EVEN HIGHER AFTER 12.5 HOURS.
- THE RATE OF EMPLOYEE ACCIDENTS INCREASES AFTER NINE HOURS OF WORK AND DOUBLES AFTER 12 HOURS.
- ONE STUDY HAS ALSO SHOWN THAT CRITICAL CARE NURSES WHO EXPERIENCED FATIGUE WERE MORE LIKELY TO REPORT “DECISION REGRET,” A CONCERN THAT THEY MIGHT HAVE MADE THE WRONG DECISION FOR A PATIENT.



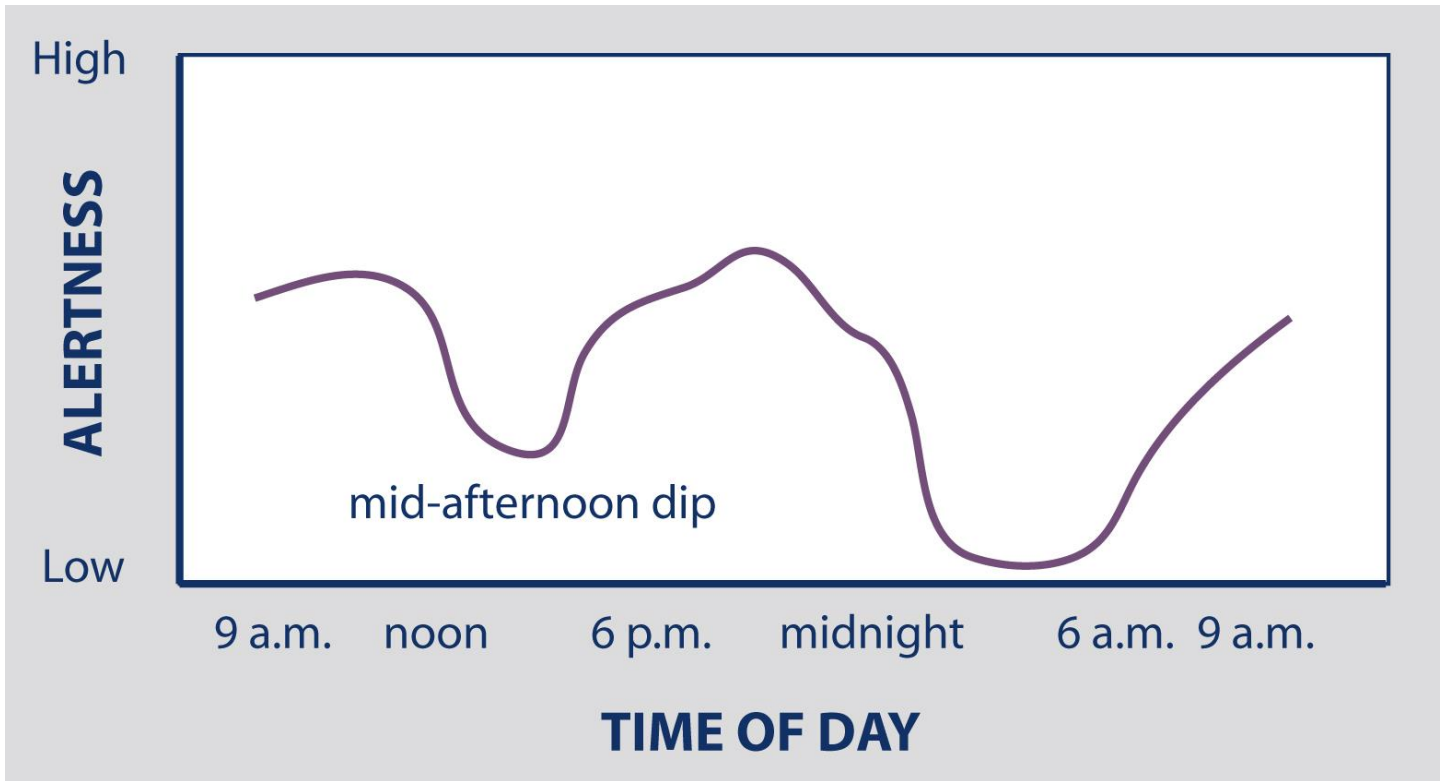
SLEEP PATTERNS & CHARACTERISTICS CHANGE OVER THE LIFE CYCLE

Newborns/ Infants	More than 50% REM; several periods of sleep; need naps
Toddlers	Sleep begins to resemble adult patterns
Children	Experience more deep sleep
Adolescents	Shift to later sleep-wake cycle Experience daytime sleepiness Naturally sleepy around 11pm and must get up early
Adults	Need regular sleep schedule to obtain enough quality sleep
Older Adults	More likely to have medical problems; sleep disrupters & disorders; sleep less efficiently



SLEEP IS REGULATED BY TWO BODY SYSTEMS

- **Sleep/Wake Restorative Process**
Balances Sleep & Wakefulness
- *The longer we are awake, the stronger the drive to sleep is*
- *Adenosine is produced to increase sleepiness*
- **Circadian Biological Clock**
Regulates Timing of Sleep & Wakefulness
- *Melatonin is produced*
- *Influences by light and darkness*



CIRCADIAN RHYTHM



- FIRST POSITED BY ALEXANDER BORBÉLY IN THE EARLY 1980'S
- CIRCADIAN RHYTHM IS GOVERNED BY THE INTERNAL BIOLOGICAL CLOCK
- ACCUMULATION OF HYPNOGENIC (SLEEP-INDUCING) HORMONES IN THE BRAIN SUCH AS MELATONIN AND ADENOSINE
- GENETIC FACTORS
- EXTERNAL FACTORS HAVE A DIRECT EFFECT ON SLEEP CYCLE
- FOOD, DRUGS, AMBIENT TEMPERATURE, MEALTIMES, NAPS, STRESS, EXERCISE, DAILY SCHEDULES, AND ALARM CLOCKS



SLEEP IS VITALLY IMPORTANT...



- For all human functioning
- Cognitive & physical performance
- Its restorative powers
- Learning & memory consolidation
- Mood enhancement
- Protects the immune system
- New evidence shows a relationship to weight gain and aging



WHAT IS SLEEP DEBT?

- AVERAGE ADULT SHOULD GET 7 TO 9 HOURS OF SLEEP DAILY
- BUT ONLY 25% OF PEOPLE REACH THIS GOAL
- EACH HOUR OF LOST SLEEP MUST BE MADE UP
- AVERAGE AMERICAN SLEEPS LESS THAN 7 HOURS
- 37% OF ADULTS SAY THEY ARE SO TIRED DURING THE DAY IT INTERFERES WITH DAILY ACTIVITIES
- 75% OF ADULTS EXPERIENCE AT LEAST ONE SYMPTOM OF A SLEEP DISORDER A FEW NIGHTS A WEEK OR MORE
- 55% OF ADULTS NAP AT LEAST ONCE DURING THE WEEK
- ONCE SLEEP IS MISSED, IT'S GONE FOR GOOD



HOW DO YOU MAKE UP YOUR SLEEP DEBT?

■ ERASING YOUR SLEEP DEBT

- MAKE A REAL EFFORT TO GET ADEQUATE SLEEP EACH NIGHT.
- DETERMINE THE AMOUNT OF SLEEP YOU NEED TO FEEL WELL-RESTED AND CREATE A SCHEDULE THAT ALLOWS ENOUGH TIME FOR SLEEP.
- ONCE YOU DECIDE HOW MUCH SLEEP YOU NEED EACH NIGHT, SOLID SLEEP HYGIENE HABITS WILL HELP KEEP YOUR SLEEP ROUTINE ON TRACK
- ESTABLISH AND STICK TO A CONSISTENT SLEEP TIME AND WAKE UP TIME
- AIM TO GET IN BED EARLY ENOUGH TO ALLOW TIME FOR READING OR INTIMACY WITHOUT CUTTING INTO SLEEP
- SLEEP WHEN YOU'RE TIRED, AND AVOID USING CAFFEINE OR OTHER STIMULANTS TO "PUSH THROUGH" FATIGUE AND SLEEPINESS
- KEEP ELECTRONICS AND SOCIAL MEDIA OUT OF YOUR SLEEPING SPACE
- MAINTAIN A SLEEPING SPACE THAT'S DARK, QUIET, AND COOL



ARE NAPS GOOD FOR YOU ?

- Naps are good for most people
- A nap—defined as daytime sleeping that lasts between 15 and 90 minutes
- Can improve brain function, memory, focus and creativity
- For some people, naps are as restorative as a whole night of sleep



EGO DEPLETION THEORY

- MANAGERS AND SUPERVISORS NEED GOOD SLEEP IN ORDER TO EFFECTIVELY DEMONSTRATE GOOD JUDGEMENT AND SELF-CONTROL
- LACK OF SLEEP RESULTS IN ABUSIVE BEHAVIOR OF MANAGERS/SUPERVISORS OF NIGHT SHIFT
- A SLEEP-DEPRIVED INDIVIDUAL IS AT AN INCREASED RISK FOR SUCCUMBING TO IMPULSIVE DESIRES, POOR ATTENTIONAL CAPACITY, AND COMPROMISED DECISION MAKING

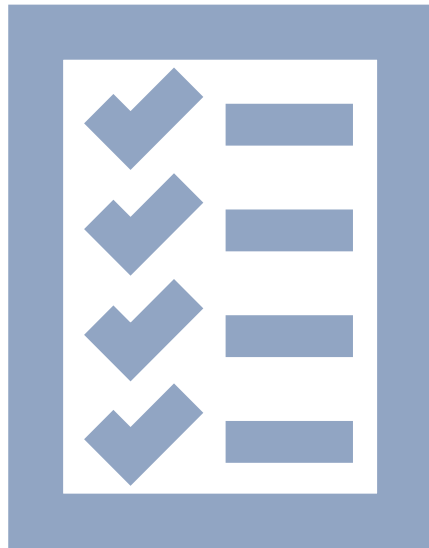


SLEEP HYGIENE



- CREATE A ROUTINE OF GOING TO BED AND WAKING UP AT A CERTAIN TIME
- MAKE SURE YOUR BEDROOM IS QUIET, DARK, RELAXING, AND AT A COMFORTABLE TEMPERATURE
- REMOVE ELECTRONIC DEVICES, SUCH AS TVS, COMPUTERS, AND SMART PHONES, FROM THE BEDROOM
- AVOID LARGE MEALS, CAFFEINE, AND ALCOHOL BEFORE BEDTIME
- GET SOME EXERCISE. BEING PHYSICALLY ACTIVE DURING THE DAY CAN HELP YOU FALL ASLEEP MORE EASILY AT NIGHT.





SUMMARY

RECOGNIZE IF YOU HAVE SLEEP DEBT

UNDERSTAND THE NATURAL SLEEP RHYTHMS OF YOUR BODY

RECOGNIZE IF YOU HAVE SLEEP DEBT AND HOW YOU CAN PAY IT BACK



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