Exercise and Sleep

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Objectives

- Sleep and the body
- Sleep deprivation
- Exercise and sleep
- Study on insomnia and cardio exercise
- Study on effects of exercise and sleep apnea
- Obesity and sleep
- Why exercise affects sleep
Sleep and the Body

- Adequate sleep is important for healthy body functioning
- Regulates mood and related to learning and memory function
- Vital to a healthy life
Sleep Deprivation

- Sleep deprivation affects health, performance, and safety
  - Does not allow body to repair/replenish/refresh
  - Affects safety and performance because you cannot focus optimally

Get the sleep you need and get more done at work.
Sleep Deprivation

- Consequences:
  - ?
  - ?
  - ?
  - ?
  - ?
Sleep Deprivation

- Consequences:
  - Decreased performance and alertness
  - Memory and cognitive impairment
  - Stress in relationships
  - Poor quality of life
  - Occupational injury
  - Automobile injury (NHTSA)
Sleep Deprivation

- Long-term consequences of untreated sleep disorders:
  - Heart attack
  - Heart failure
  - Stroke
  - Obesity
  - Psychiatric problems (depression and mood disorders)
  - Attention Deficit Disorder (ADD)
  - Mental impairment
  - Fetal and childhood growth retardation
  - Injury from accidents
  - Disruption of partner’s sleep
  - Poor quality of life

(Webmd)
Exercise

• Benefits:
  • Improves sleep
    • Fall asleep easier
    • Sleep longer
    • Sleep better
  • Feel rested and refreshed
  • Reduce need for some medications
Exercise and Sleep

- Time of day to exercise:
  - Evening exercise: Should be at least 3-4 hours before bed
    - Raises body temperature
  - Morning exercise
    - Couple with exposure to outdoor light to improve sleep by reinforcing body’s sleep-wake cycle
  - Afternoon exercise*
    - Late afternoon or early evening was seen to be most beneficial
      - Raises body temperature above normal, allowing it to start to fall as you are ready to go to bed
      - Decrease in body temperature appears to be trigger to sleep

(Health)
Exercise and Sleep

- Cardiovascular exercise most beneficial
  - Keep heart rate up and muscles pumping at least 20 min
  - Strength training, stretching, and yoga are also beneficial, but none match sleep-enhancing benefits of cardiovascular exercise
Examples of Cardiovascular Exercise

- Walk to work
- Walk the dog
- Jogging
- Swimming
- Biking
- Skiing
- Jumping rope
- Dancing
- Playing tennis
Study on Aerobic Exercise

- Northwestern University study
  - Engaging in regular exercise could improve quality of sleep
  - Examined effects on insomnia – much improvement
  - May reduce the medications taken for sleep and interactions with other medications
  - Especially true for older adults – insomnia increases with age

(Webmd)
Apnea

- Sleep-related breathing disorder (18 million)
- Repeatedly stop breathing at night
- Not only not getting adequate sleep but could lead to: congestive heart failure, heart attack, stroke, and excessive daytime sleepiness
- Sleep inherently linked with how we eat
- Often associated with obesity
- Exercise would improve both weight and sleep

(sleep foundation)
Obesity and Sleep

- 5 hours or less much more likely to be obese compared to those getting 7-8 hours
- Those who sleep less seem to prefer higher calorie foods and carbohydrates, leading to weight gain
- Less motivated to diet and exercise due to low energy levels
- Insulin controls blood sugar during sleep so those without enough may have levels similar to diabetics.
- Less sleep – higher levels of ghrelin (hunger hormone) and lower levels of leptin (curbs hunger)
Why Exercise Affects Sleep

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Why Exercise Affects Sleep

- Smoother transitions between the cycles and phases of sleep
- Able to remain in deep sleep longer
- Body temp increases, then later a drop, triggering sleep
- Sleeplessness shown to lead more sedentary lives than good sleepers
Key Notes

- Exercise will:
  - Allow better and longer sleep
    - Reduces consequences of sleep deprivation
    - Better controls of insulin
    - Lower ghrelin, higher leptin
    - Less likely to overeat
    - Reduce medications
    - Less depression, better mood
    - More energy
  - Vital to a healthy life *(along with nutrition and exercise)*
References

- http://www.sleepfoundation.org/article/sleep-topics/diet-exercise-and-sleep
- http://www.nhlbi.nih.gov/health/health-topics/topics/obe/
- http://www.webmd.com/sleep-disorders/guide/important-sleep-habits
Questions?