



Get Some Sleep (Just Not Behind the Wheel!)

Paul Nystrom, MD
Faculty, Hennepin County Medical Center Department of Emergency Medicine
Assistant Chief Medical Director, Hennepin EMS
Medical Director, Edina Fire & Police
Medical Director & Officer, Plymouth Police
Medical Director, Brooklyn Park Police
Assistant Professor, University of Minnesota Department of Emergency Medicine



These opinions and ideas are mine and do not represent the opinions/policies of HCMC or PPD.

I mention specific names/brands because I believe they have value.

I have biases but I don't have anything to sell.



Today's Agenda

- Stress the importance of sleep
- Discuss what happens when we sleep
- Talk about strategies for better sleep



Personal Attitudes

- Sleep is for the weak
- Napping is for lazy people
- FOMO- Fear Of Missing Out
- “I’ll sleep when I’m dead.”



Kirk Parsley, MD (TEDx)

- We pride ourselves on sleep deprivation
- We think we are immune
- We know performance suffers



Less Sleep

- Clearly linked to metabolic disease
- Often disregarded and overlooked
- More important than Nutrition?
- **Better sleep buffers dietary indiscretion**



Less Sleep & Health

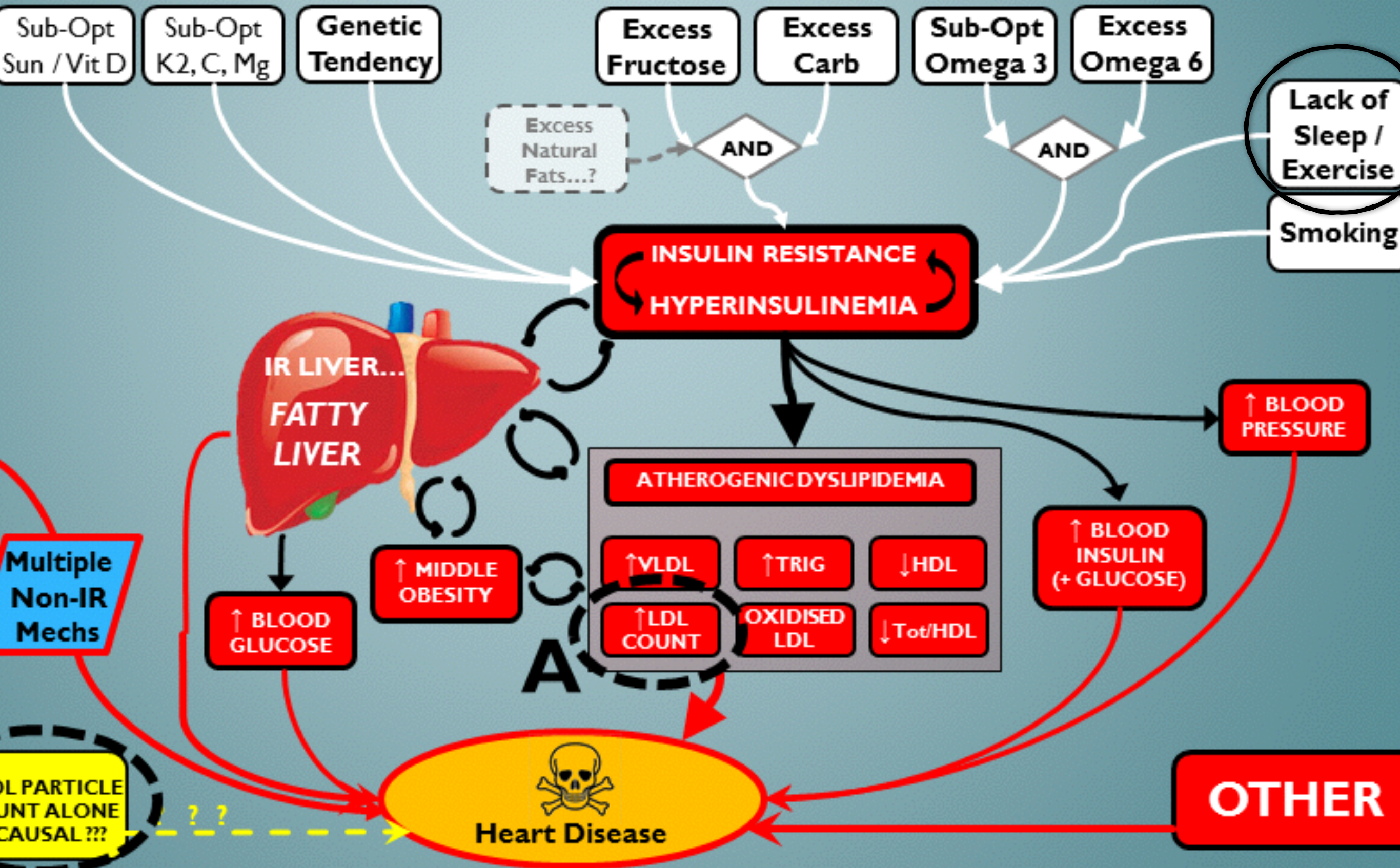
- Higher rates of heart disease, hypertension
- Higher rates of infection, allergy & asthma
- Higher rates of sexual dysfunction
- Higher rates of depression, anxiety, anger, irritability, suicide



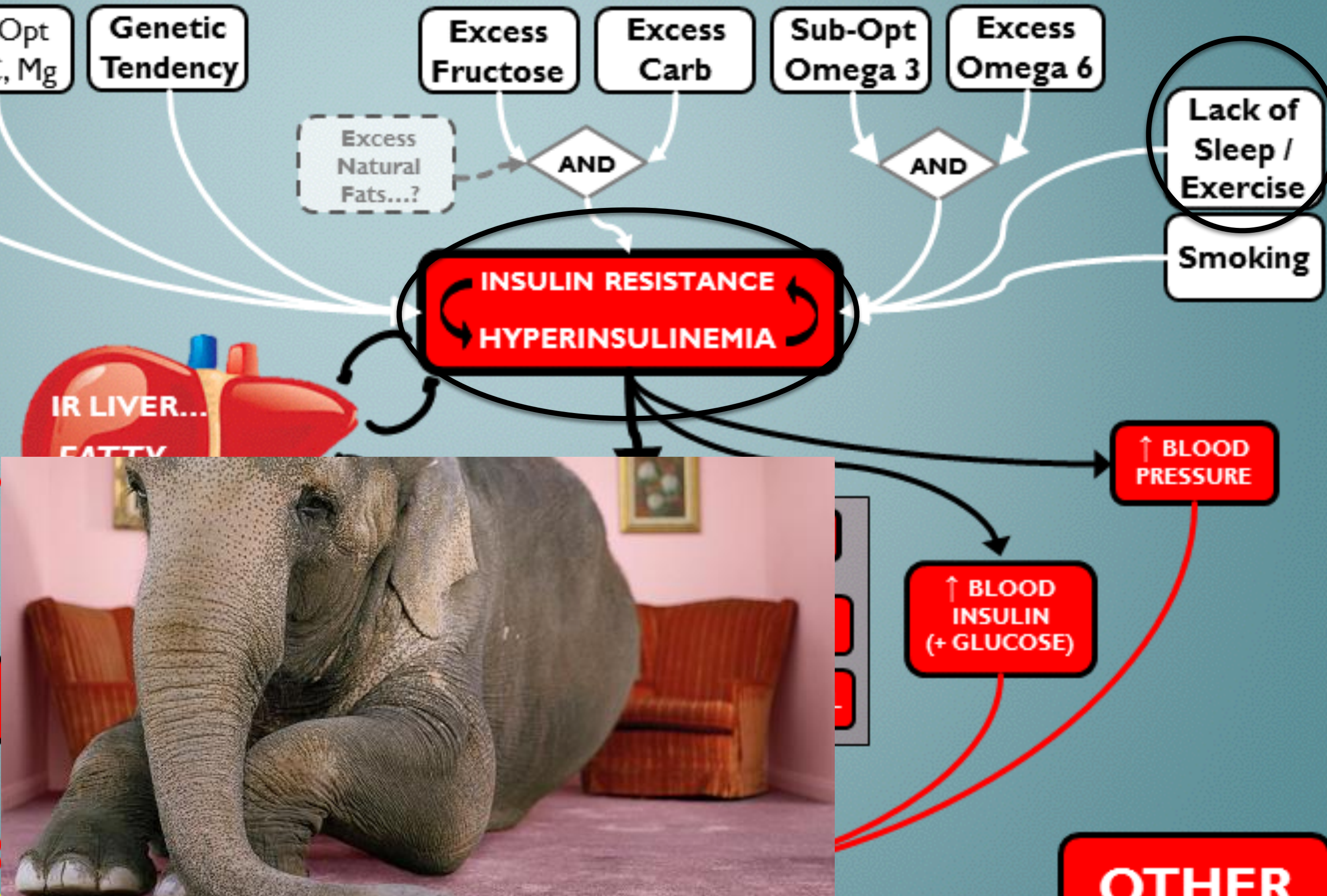
Sleep & Insulin

- Small studies restricting sleep:
 - Insulin at pre-diabetic levels
 - Blood sugar at diabetic levels

Root Cause Diagram for Cardiovascular Disease



Cause Diagram for Cardiovascular Disease



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Genetic
Tendency



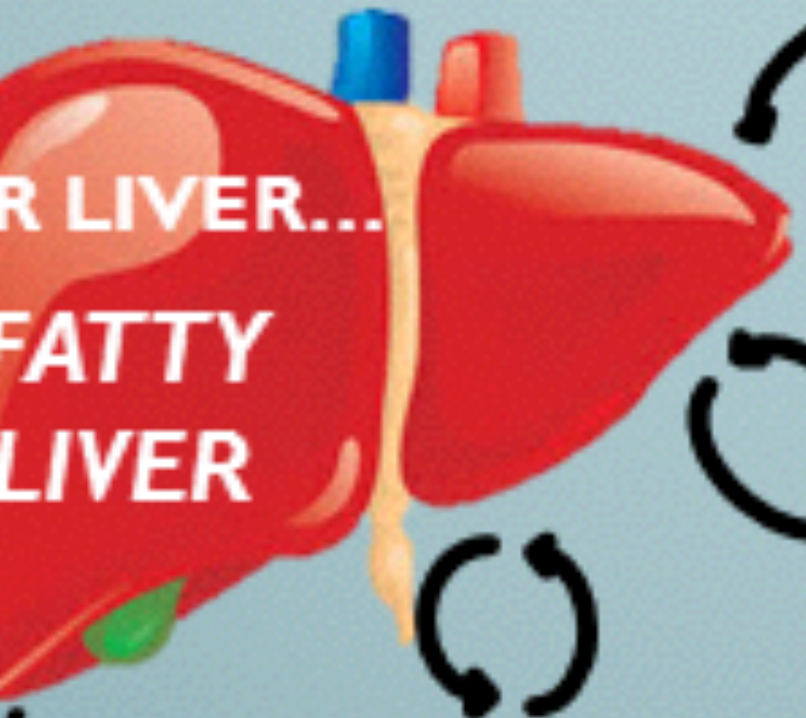
lar Dis

pt
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Excess
Omega

AND

INSULIN RESISTANCE
HYPERINSULINEMIA



R LIVER...
FATTY
LIVER

ATHEROGENIC DYSLIPIDEMIA

↑ MIDDLE

↑ VLDL

↑ TRIG

↓ HDL

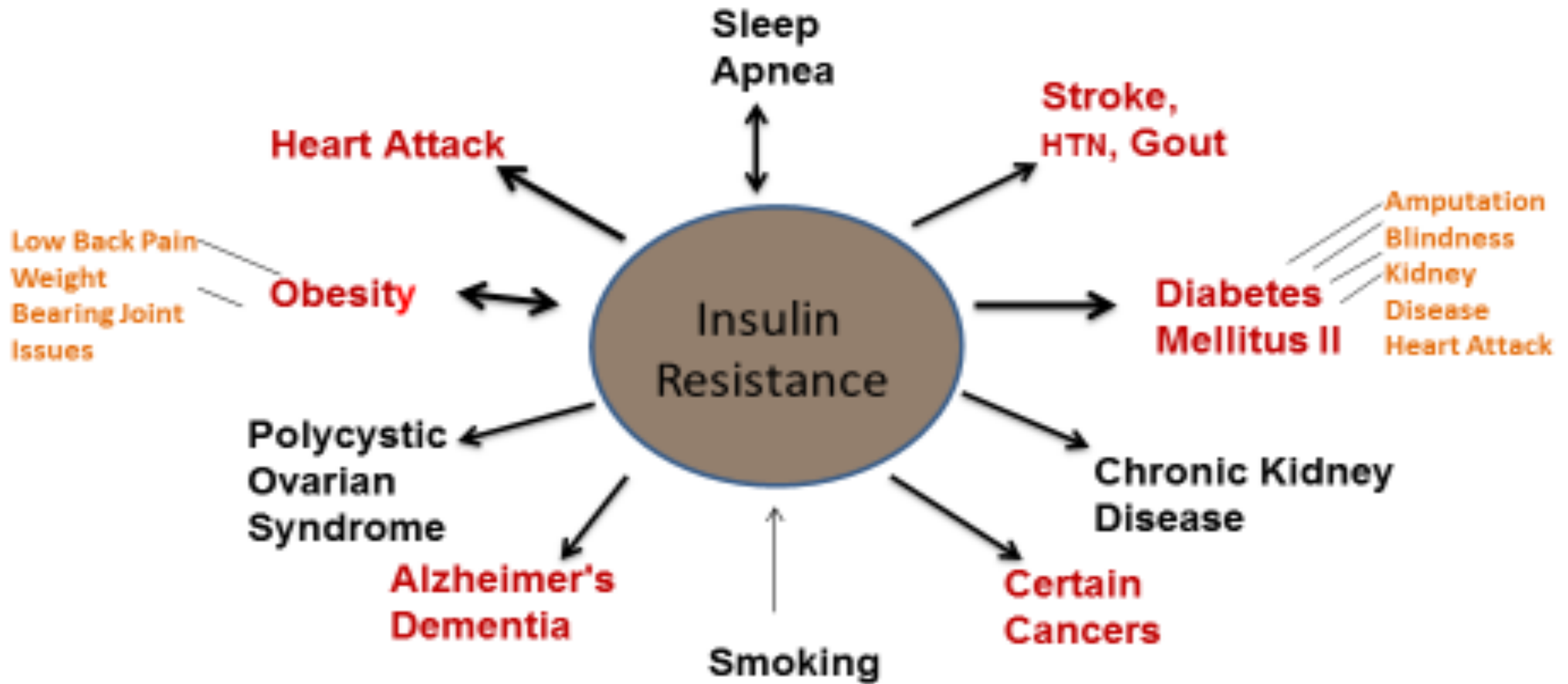
↑ BLOOD
INSULIN
(+ GLUCOSE)



INSULIN RESISTANCE
HYPERINSULINEMIA



INSULIN RESISTANCE RELATES TO THESE DISEASES OF CIVILIZATION



Insulin Resistance OUR UNIFIED FIELD THEORY





Pilots have work hour restrictions.

Truckers have work hour restrictions.

ATCs have work hour restrictions.

Medical residents have work hour restrictions.

Public Safety has work hour restrictions.



Other Hormone Disruption

- Increased Cortisol
 - High blood sugar/High insulin
 - Good for “fight or flight”
 - Bad when chronically elevated
- Decreased Growth Hormone (GH)



Growth Hormone (GH)

- The Repair hormone
- Released in response to:
 - **Deep sleep (slow wave sleep)**
 - High intensity exercise
 - Fasting

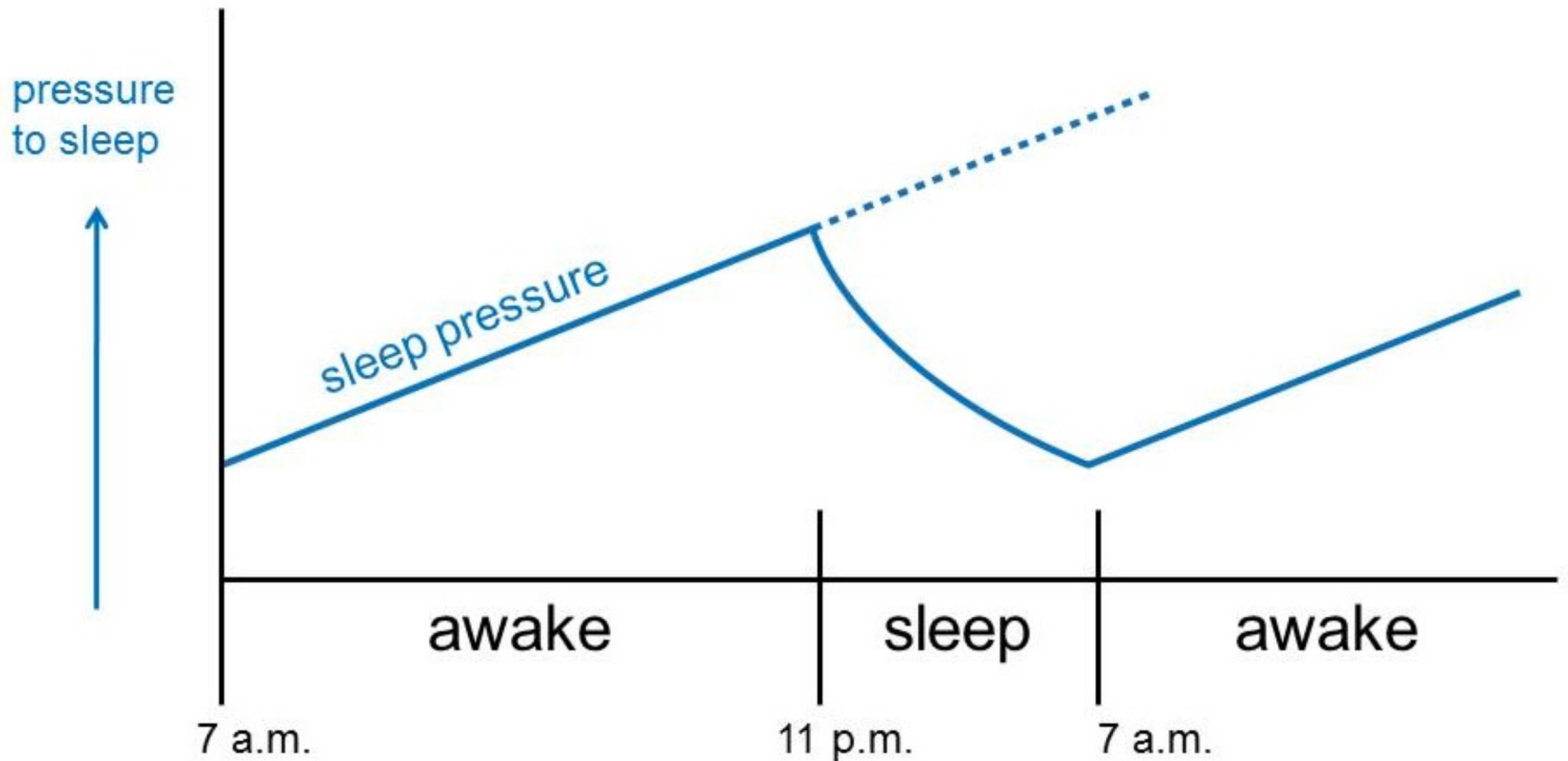


Hunger Hormones

- Ghrelin- promotes hunger
 - Increased with lack of sleep
- Leptin- inhibits hunger
 - Reduced with lack of sleep

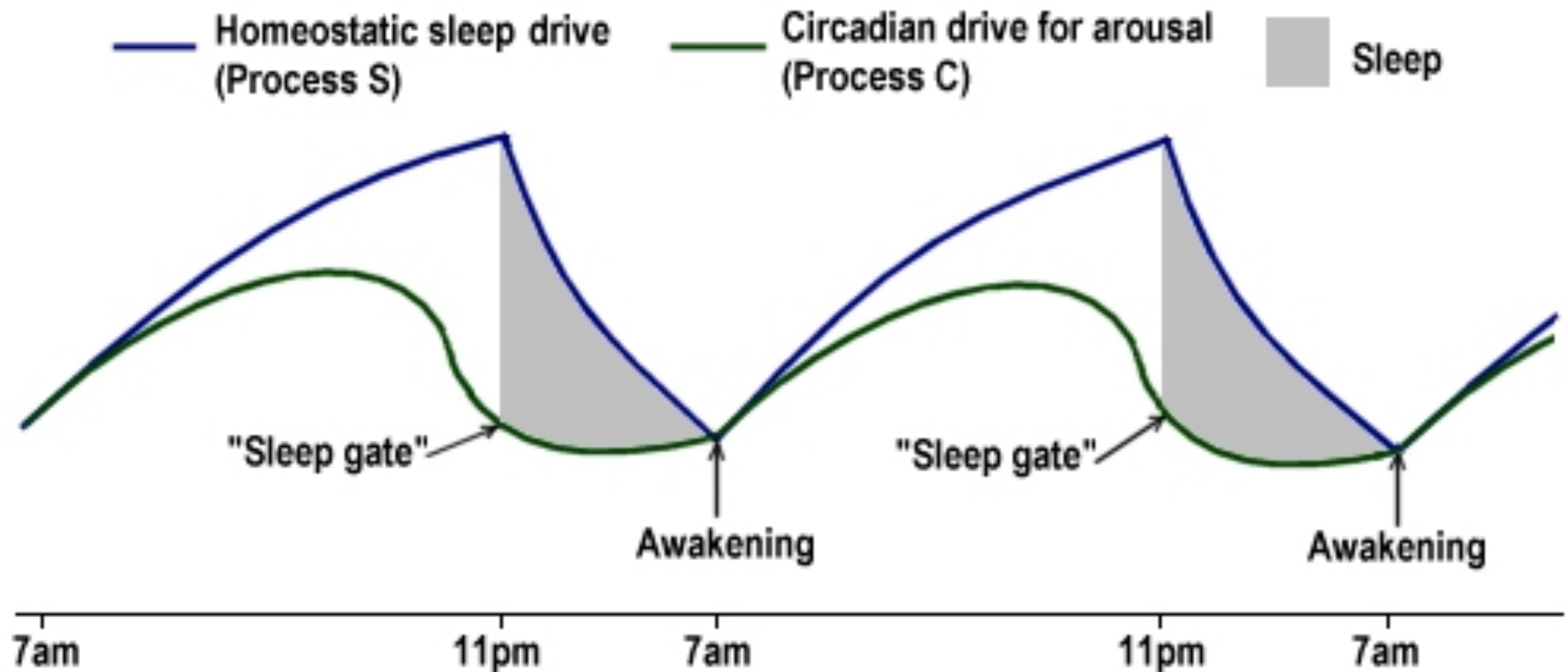


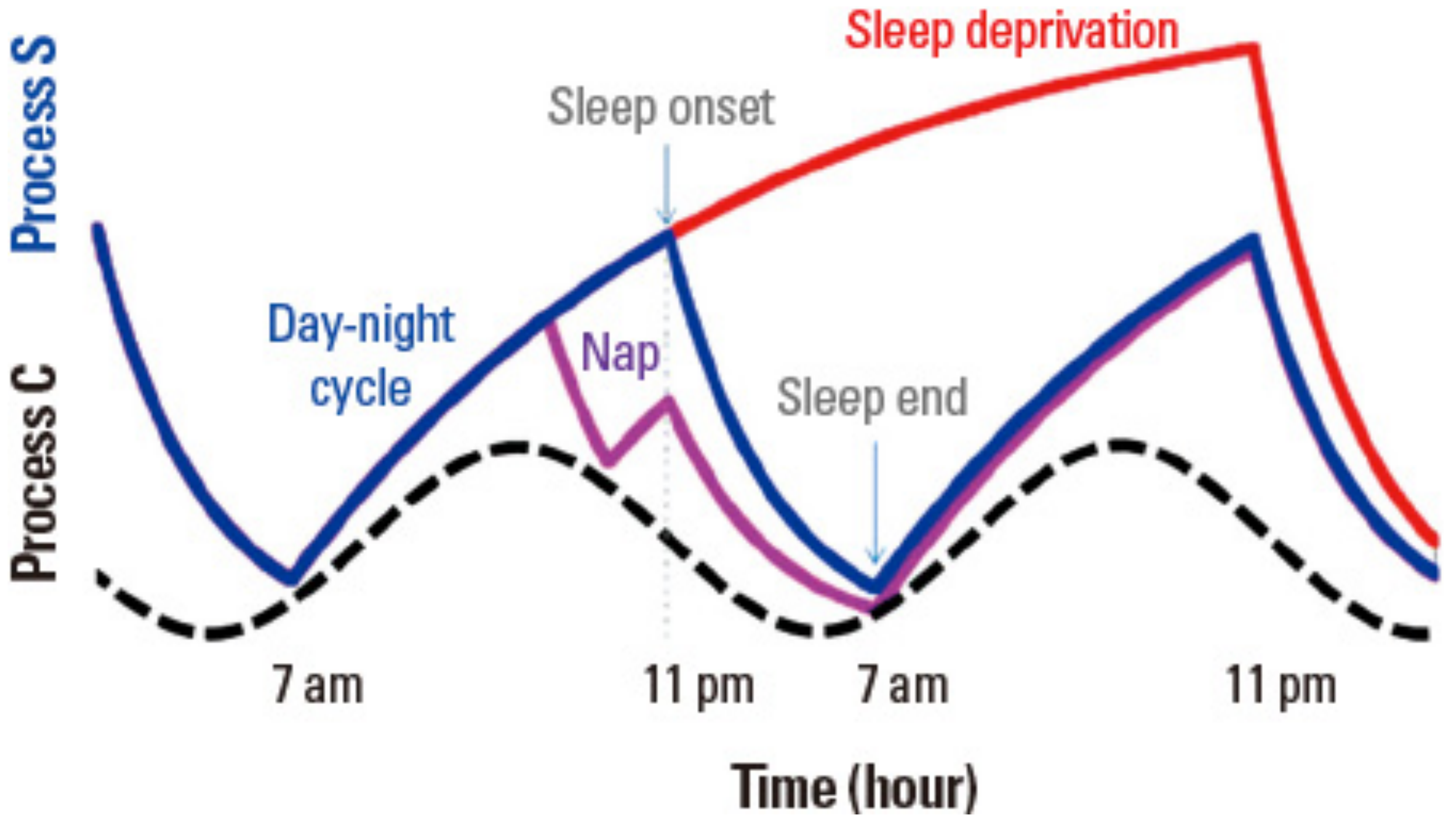
Why Sleep?





Sleep Pressure & Circadian Rhythm

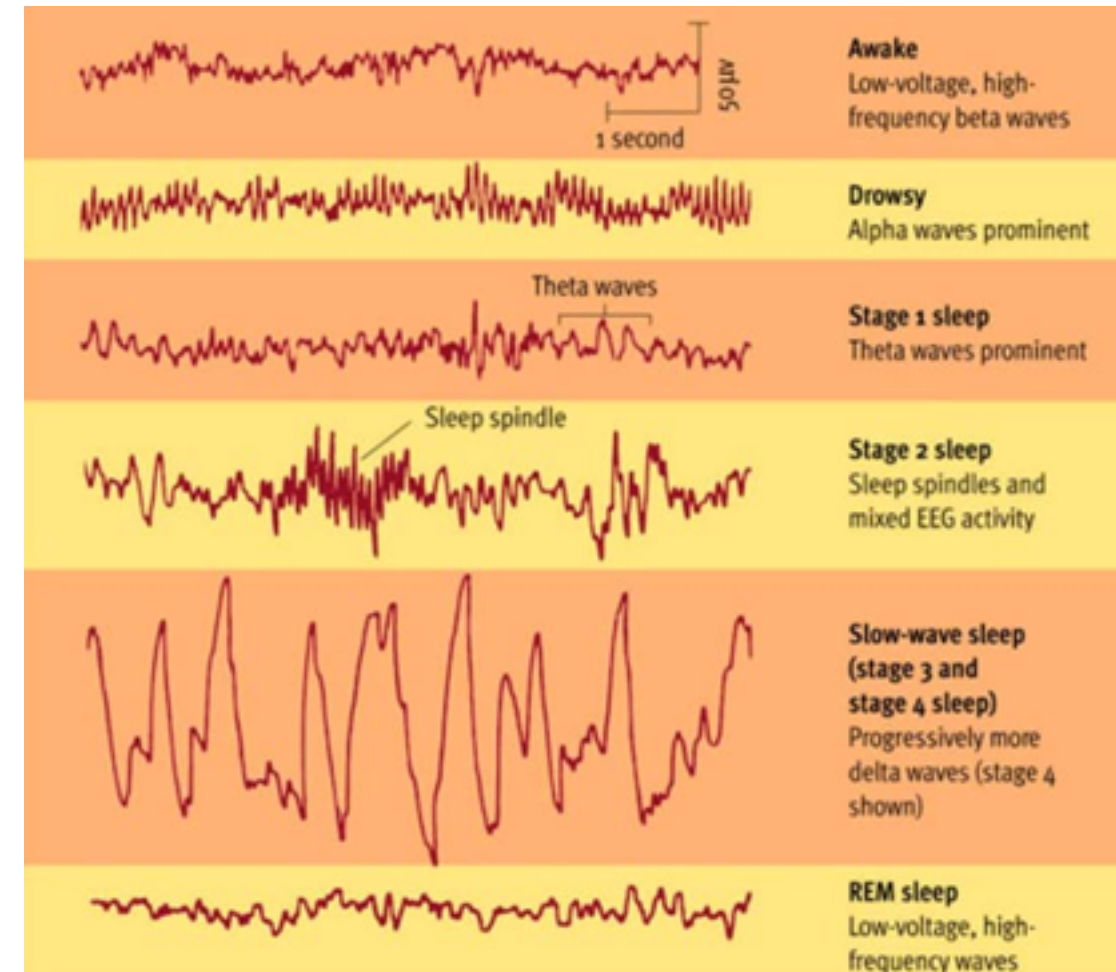






Sleep Cycles

- 5 stages
 - 1,2,3,4
 - REM- Rapid Eye Movement
- Repeating pattern in **90-100 min cycles**
 - 1,2,3,4,2,REM,2,3,4,2,REM,2,3,4,2,REM...





Sleep Cycles

- Stage 1: occurs only once, a transition into sleep
- Stage 2: >50% of sleep time
- REM: 20% of sleep time
- Stages 3 & 4: the balance of sleep



Stage I

- Lasts 2-5 mins
- Least understood & Quasi-REM
- “Hypnagogic state”
 - Enlightening and inspirational
 - Conscious and unconscious meld



Stage 2

- HR slows, body temp drops
- Actual unconsciousness
- Gives your mind a rest
- Important for motor learning
- Relatively easily to wake up



Stages 3 & 4

- Slow Wave Sleep (SWS)
- Brain cools as blood vessels constrict
- **Cortisol turns off, GH turns on**
 - Physical repairs
- Memory decluttering
- Harder to wake up



REM

- Irregular, faster breathing, HR & BP rise
- Vivid dreams with paralysis
- Best for memory, creativity, & mastering complex things
- Especially within minutes to hours of learning



Sleep Hygiene

- **Consistent routine**
 - Sleep alarm
- **Dark**
 - Sleep mask
- **Cold**
 - 60-66 degrees optimal
- **Quiet**
 - Ear plugs or white noise



Sex & Snoring

- Your bed is for sleep or sex
 - Program your body to happily anticipate going to bed
- Change your environment
- Get a sleep study if you snore



Caffeine Effects

- Blocks adenosine receptors in the brain
 - Adenosine is usually inhibitory (downer)
- Fatigue/sleep pressure builds due to adenosine



Caffeine = Band Aid

- Proven performance enhancer but effects are negated by tolerance.
- Long half life impairs sleep cycles
- Drink less caffeine, enjoy it more



Use the Light

- Most powerful environmental/circadian cue
- Use light to your advantage
 - Bright light early in your wake cycle
 - Non-blue light before bed
- f.lux or Night Shift on screens
- Dashboard lights/work lighting



5 THINGS

YOU CAN DO AFTER LUNCH

TO IMPROVE

SLEEP QUALITY

- 1 No coffee after noon
- 2 Blackout bluelight
- 3 Improve sleep environment
- 4 Create bedtime routine
- 5 Reduce emotional commotion



Emotional Commotion

- Guard your relationships
- Don't check email/messages before bed
- Prep your morning
- Keep a note pad by the bed



Don't Waste Sleep Time

- Screens & Technology are not our friends
- Social media & FOMO
- Binge watching
- The Nightcap



Guard Your Sleep

- And your family & friends' sleep
 - Don't call/text/message late except emergencies
- Email x3, Active 911 x3, Ziplt, Smart Pager, Slack, FB, FB Messenger, Twitter, Google Hangouts
- Change your phone settings
 - Fetch vs. Push; "Do Not Disturb"
 - Limit your emergency contacts



Sleep Drugs

- All sleep drugs disrupt sleep architecture
- The best treatments for insomnia are behavioral

Insomnia is more often a Priority problem than a Physiologic problem



To Nap or Not To Nap?

- Evolutionary evidence supports biphasic sleeping
- A longer period at night, shorter period 12 hrs later
- Lost with the invention of the clock and the industrial revolution



Nap Benefits

1. Increase your alertness
2. Speed up your motor performance
3. Improve your accuracy
4. Make better decisions
5. Improve your perception
6. Fatten your bottom line
7. Preserve your youthful looks
8. Improve your sex life
9. Lose weight
10. Reduce your risk of heart attack and stroke



Nap Benefits

1. Reduce your risk of diabetes
2. Improve your stamina
3. Elevate your mood
4. Boost your creativity
5. Reduce stress
6. Help your memory
7. Reduce your dependence on drugs/alcohol
8. Alleviate migraines, ulcers & other problems with psychological components
9. Improve the ease and quality of your nocturnal sleep
10. It feels good



Naps & Nocturnal Sleep

- Naps do not adversely effect nocturnal sleep if:
 - You have normal sleep
 - Shorter than 3 hours (max 2 sleep cycles)
 - Wake up >3 hours before bedtime



Sleep Inertia

- Waking from SWS
- You are not “more tired” than before
- Proven solutions:
 1. Physical activity
 2. Sensory stimulation
 3. Caffeine



The 20 min Power Nap

- Stage 1: 2-5 mins
- Stage 2: the first Stage 2 takes 17 mins at minimum
- Increases alertness
- Avoids SWS and sleep inertia



Force Science News #323

“Restorative Rest”

- Henderson, Nevada
- Approved naps on dog watch
- In place of 60 minute meal
- Duty belt off, otherwise ready
- Radio on, alarm set



Resources

- Kirk Parsley- TEDx Reno
- *Take a Nap, Change Your Life*- Sara Medick
- *The Sleep Revolution*- Arianna Huffington
- *Tools of Titans*- Tim Ferriss
- Mark's Daily Apple
- Whole 9 Life

paulcnystrom@gmail.com
[@paulcnystrom](#)