

Sleep

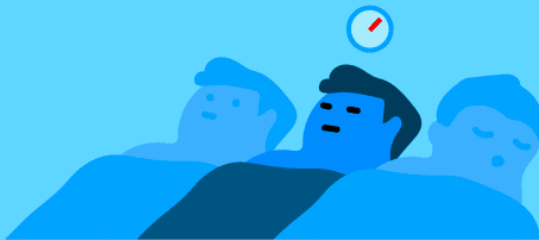
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Sleep

- A physical and mental resting state in which a person becomes relatively inactive and unaware of the environment.
- Sleep is a partial detachment from the world where most external stimuli are blocked from the senses.
- Quality sleep – and getting enough of it at the right times is as essential to survival as food and water.



The 4 Stages of Sleep



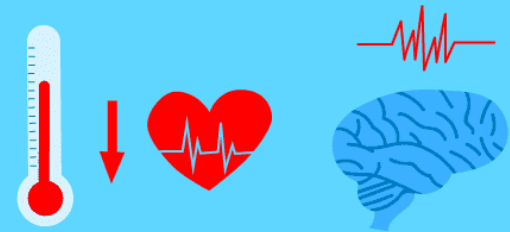
NREM Stage 1

- transition period between wakefulness and sleep
- lasts around 5 to 10 minutes



NREM Stage 3

- muscles relax
- blood pressure and breathing rate drop
- deepest sleep occurs



NREM Stage 2

- body temperature drops and heart rate begins to slow
- brain begins to produce sleep spindles
- lasts approximately 20 minutes



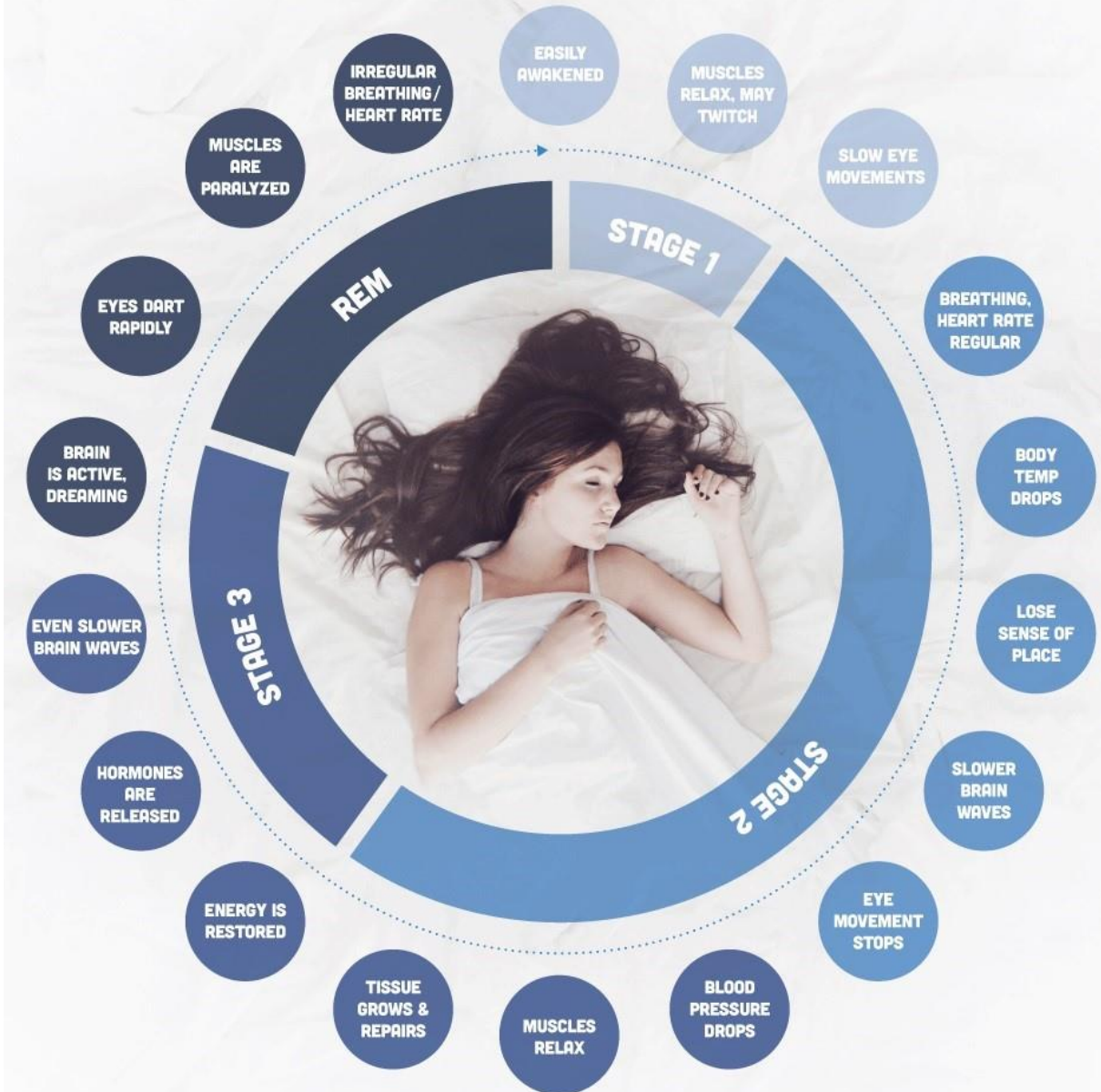
REM Sleep

- brain becomes more active
- body becomes relaxed and immobilized
- dreams occur
- eyes move rapidly

Stages of Sleep

Stage 1	Lightest stage of sleep (theta)	Transition from wakefulness to sleep Last 1-7 minutes Lose responsiveness to stimuli Drifting thoughts & images
Stage 2	“Real Sleep” (theta)	Gradual decrease in: heart rate, respiration, body temperature, & muscle tension Difficult to be awakened
Stage 3	Transition Stage (delta)	30-45 Minutes after drifting off to sleep
		Decrease in: Heart rate, respiration, temperature, & muscle tension Difficult to be from which to be awakened
Stage 4	“Slow wave sleep” (delta)	Deepest Stage of sleep Most difficult from which to be awakened May sleepwalk, sleep talk, snack, night terror
REM	Rapid Eye Movement (beta)	Eyes move rapidly back & forth behind closed lids Physiologically body is very aroused Voluntary muscles are paralyzed (if a nightmare, will NOT act out because) Pass though 5-6 times a night (15-45 min each time; 30-90 min between each period)

WHY YOUR BODY LOVES SLEEP



Hormones released in the brain during sleep

Growth hormone

Essential for growth and tissue repair

- Produced in the pituitary gland (in the brain)
 - Released during sleep
-

Antidiuretic hormone (ADH)

Prevents the production of dilute urine

- Produced in the pituitary gland (in the brain)
 - Levels of ADH increase during sleep
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Melatonin

Signals to the body that it is time to sleep

- Produced in the pituitary gland (in the brain)
 - Released with increased darkness
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Oxytocin

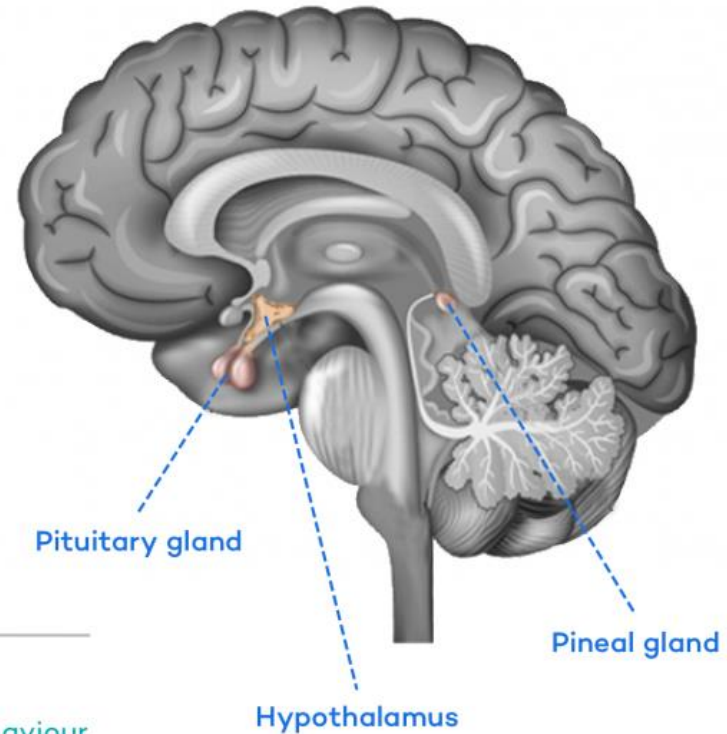
Involved in childbirth, lactation and social behaviour

- Produced in the hypothalamus (base of the brain)
 - Levels peak after 5 hours of sleep
 - Levels may influence the content of dreams
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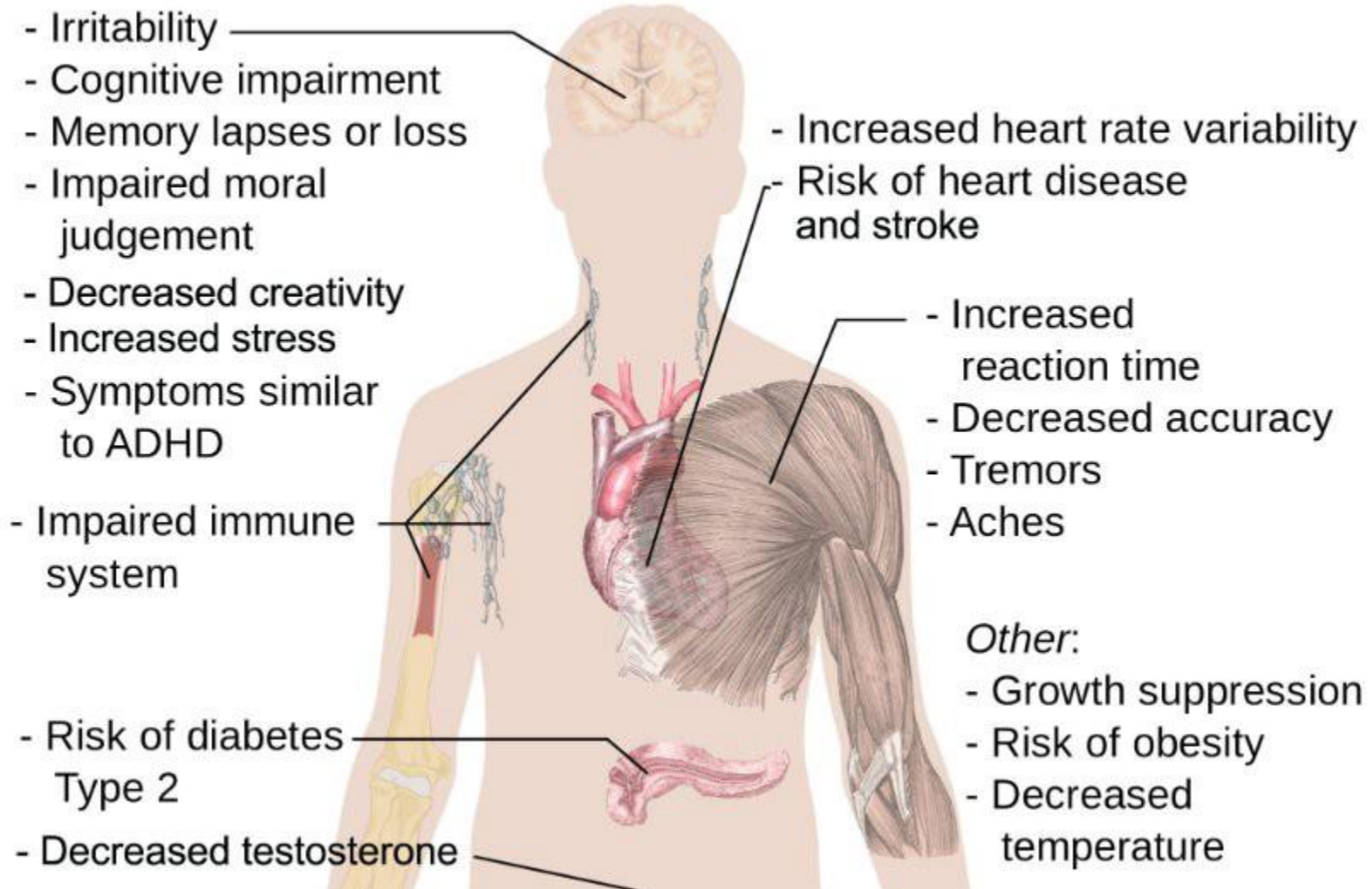
Prolactin

Involved in over 300 functions including lactation, metabolism and immune system regulation

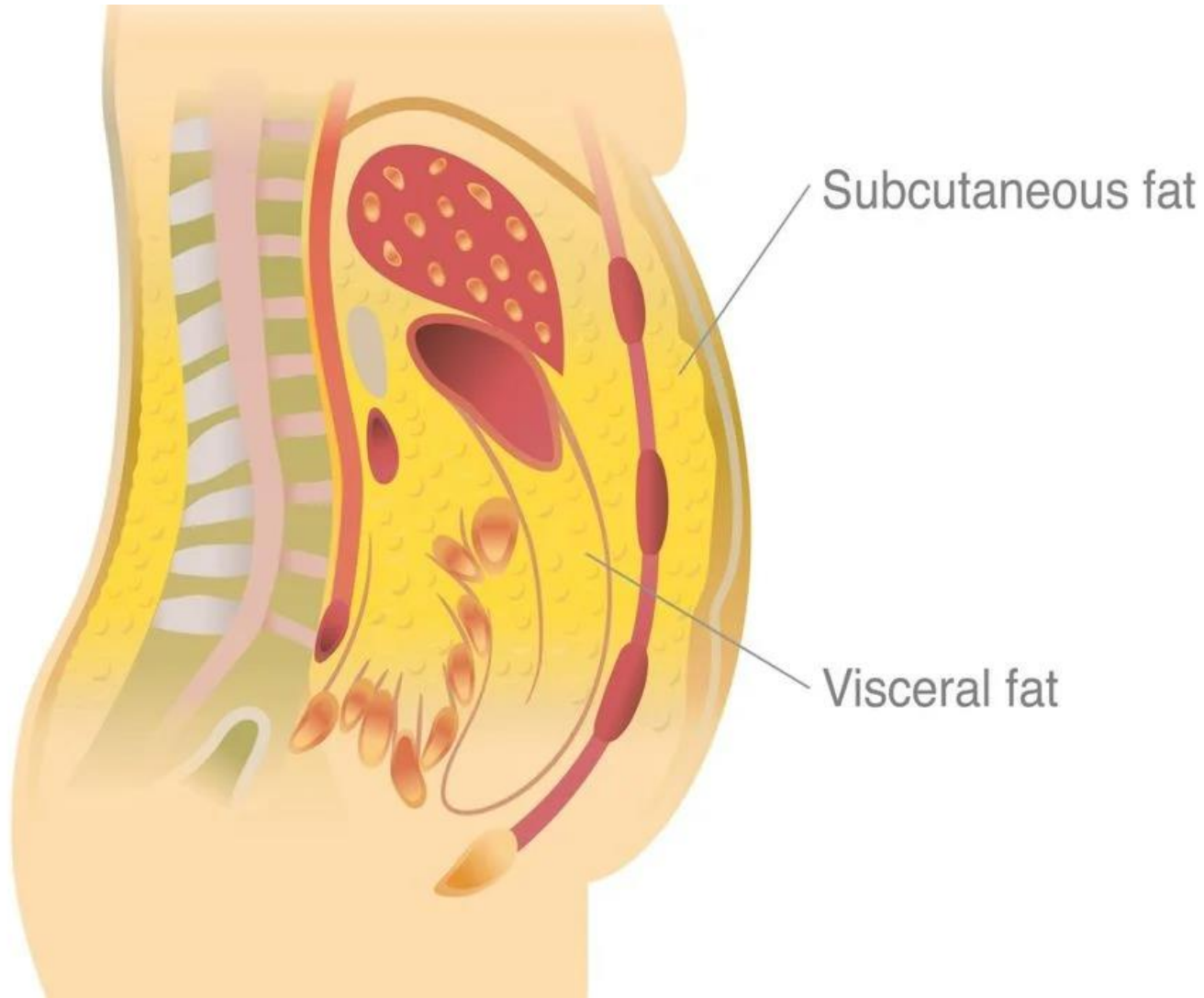
- Produced in the pituitary gland
 - Levels are higher during sleep than in daytime
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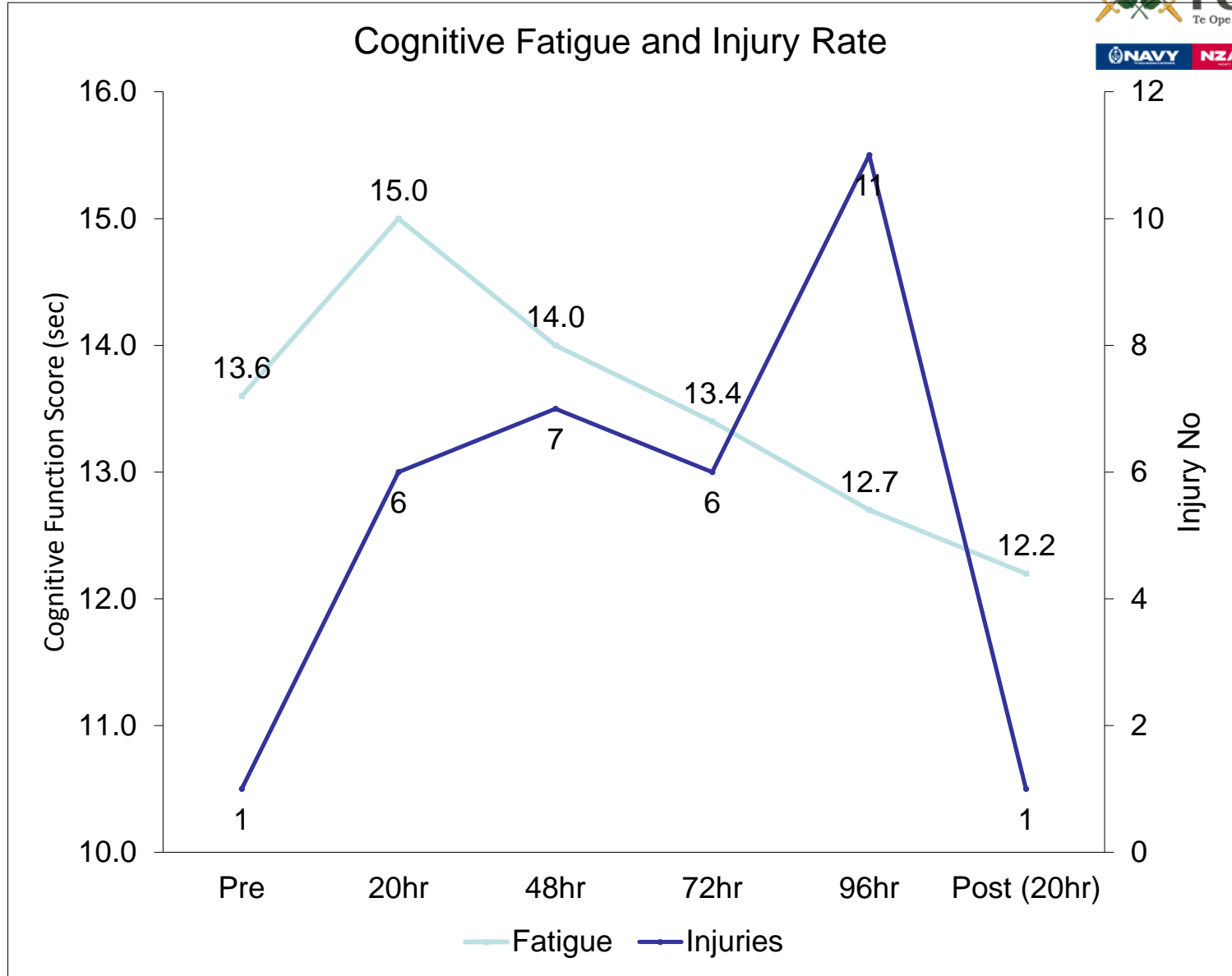


SIDE EFFECTS FROM MISSING SLEEP



Sleep and fat - inadequate sleep appears to redirect fat to the more dangerous visceral compartment





Sleep Deprivation (fatigue) during SUSOPS

Sleep and Exercise



- At least 90 minutes before bedtime.
- This allows time for endorphin levels and core body temperature to return to levels that are conducive to sleep.
- In preparation for sleep, body temperature drops, heart rate slows, and brain waves get slower.
- By contrast, exercise leads to a rise in core body temperature, an increased heart rate, and higher levels of arousal that can hinder sleep.

Sleep and Exercise

Multiple studies have found that evening exercise improves sleep quality by helping people fall asleep faster, reducing night-time awakenings, and increasing the time spent in slow-wave sleep.



Sleep and Exercise



- However, experts caution that vigorous exercise within one hour of bedtime does not allow time for core body temperature to cool.
- This may delay sleep, affect sleep quality, and lead to more night-time awakenings.
- People with insomnia are usually advised to stick to light to moderate exercise at least four hours before bedtime.

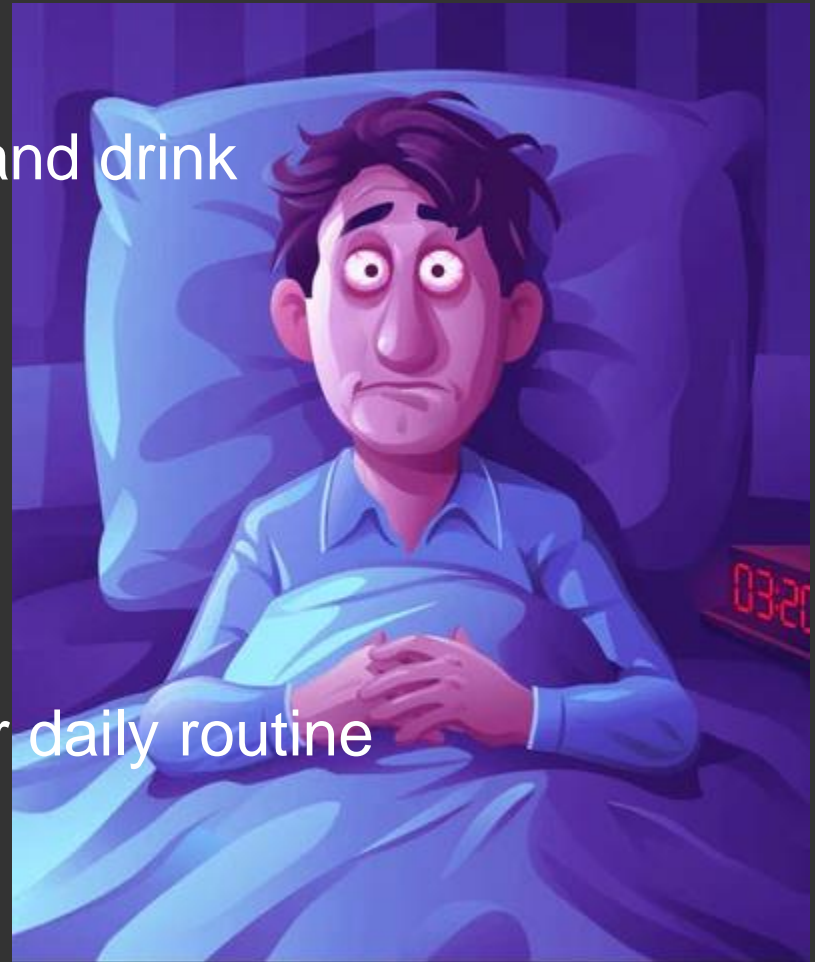
Sleep

- Ideal 7-8hr
- Target 7hr
- Actual 6hr
- Current 5½ - 6 ½ (Max)



Six Steps for Better Sleep

- Stick to a sleep schedule
- Pay attention to what you eat and drink
- Create a restful environment
 - Cool
 - Lighting
- Limit daytime naps
- Include physical activity in your daily routine
- Manage worries



Questions?

