

# Consciousness, Attention, & Sleep

June 13, 2018  
p. 183-192; 208-210

# Roadmap for Today

- What is consciousness?
- What are the different levels of consciousness?
- How does sleep relate and play a role in consciousness?
- What is attention? How do we attenuate more or less? What impacts it?

# Exam 1 Review

Four psychologists, each from a different psychological perspective, are eating dinner. They notice their waitress is crying. When the waitress leaves, they each provide an explanation for why she is crying. What did the humanistic psychologist most likely say?

- A. She is struggling with psychological blockages from unconscious conflict.
- B. She thinks her job is harming her personal growth and preventing her from realizing her full potential.
- C. She was probably punished by her boss, or denied some expected reward.
- D. She is concerned about her biological clock and that she will not be able to pass on her genes.

In the nervous system, each neuron communicates with:

- A. One or two other neurons
- B. A random subset of the other neurons in the nervous system
- C. Many other neurons in an organized network
- D. All of the other neurons in the nervous system.

When inactive, the electrical charge inside of a neuron is slightly more negative than the electrical charge outside of the neuron. This difference in electrical charge is the:

- A. Action potential**
- B. Resting state**
- C. Inhibitory signal**
- D. Excitatory signal**

Basic survival functions such as heart rate  
are controlled by the hindbrain structure  
called the:

- A. Thalamus**
- B. Hippocampus**
- C. Cerebellum**
- D. Medulla**

The founder of the American Psychological Association is:

- A. Mary Calkins
- B. William James
- C. G. Stanley Hall
- D. Kenneth Clark

If a measure is valid, it:

- A. Measures what it was intended to measure.**
- B. Produces a consistent result if the same thing is measured twice.**
- C. Predicts actual behavior.**
- D. Covaries with the independent variable.**

\_\_\_\_\_ Validity refers to whether variables have been operationally defined in a normal, typical, or realistic way.

- A. External**
- B. Correlational**
- C. Internal**
- D. Theoretical**

As ice cream sales increase, tourism to New Hampshire's ski resorts decreases. This relationship is called a:

- A. Negative correlation**
- B. Positive correlation**
- C. Third variable problem**
- D. Spurious correlation**

US Income has a positive skew. This means that the mean, or average, is \_\_\_\_\_ than the median.

- A. Higher
- B. Lower
- C. Equal to
- D. Cannot be told based on the current information.

Padma carries a gene that makes her more susceptible to depression. Due to this gene, Padma is depressed, and her marital environment suffers from this. This effect may be best explained by:

- A. Passive gene-environment correlation**
- B. Evocative gene-environment correlation**
- C. Active gene-environment correlation**
- D. Psychodynamical correlations**

\_\_\_\_\_ was a counter-response to the continued focus of the unconscious mental forces being studied by psychologists.

- A. Gestalt psychology
- B. Psychodynamics
- C. Behaviorism
- D. Social psychology
- E. Neuroscience

What does it mean to  
be conscious?

# What is consciousness?

- **Consciousness:** A person's subjective experience of the world and mind.
- **Phenomenology:** How things seem to the conscious person - their internal perspective
- **Problem of the other minds:** The fundamental difficulty we have in perceiving the consciousness of others.
- **Mind/Body Problem:** The issue of how the mind is related to the brain and the body.

# What is consciousness?

- **Problem of the Other Minds:**
  - **Subjectivity:** Your own conscious thoughts.
  - **Objectivity:** The truth ‘out there’ in the world.
  - **Illusionary Intersubjectivity:** We share an agreed understanding that you think like I do, even though there is no way we can prove it (Rommetveit, 1992).
  - **Interobjectivity:** Our understanding of others has a place in a routinely objective exchange of meanings that incorporates our subjectivities (G. H. Mead; c.f. Daanen & Sammut, 2012).

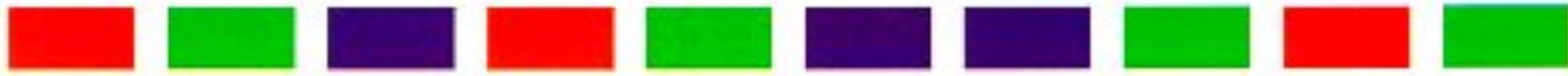
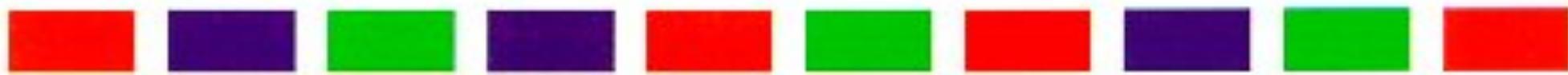
# Consciousness

- Four Properties of Consciousness
- **Intentionality:** Being directed towards an object
- **Unity:** Resistance to divided attention
- **Selectivity:** The capacity to include some stimuli or aspects of a stimulus but not others
- **Transience:** Tendency to change

# Who said my name?

- Cocktail Party Phenomenon





**PURPLE** **YELLOW** **RED**  
**BLACK** **RED** **GREEN**  
**RED** **YELLOW** **ORANGE**  
**BLUE** **PURPLE** **BLACK**  
**RED** **GREEN** **ORANGE**

# What happened?

- The **Stroop Effect**: Conflict between two brain processes (color & word recognitions) so it takes longer.



# Consciousness

- Four Properties of Consciousness
- **Intentionality:** Being directed towards an object
- **Unity:** Resistance to divided attention
- **Selectivity:** The capacity to include some stimuli or aspects of a stimulus but not others
- **Transience:** Tendency to change

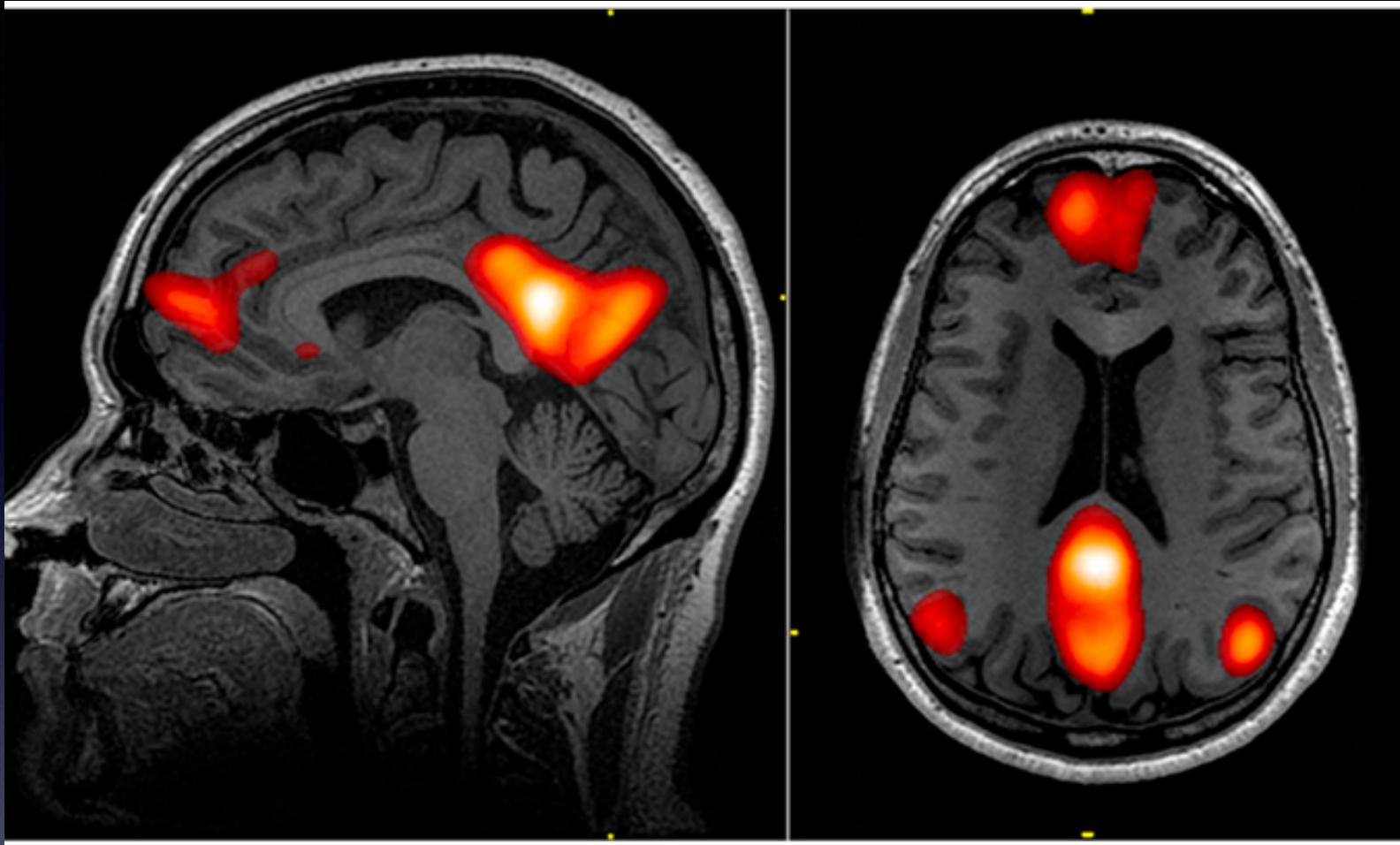
# Types of Consciousness

- **Minimal consciousness:** A low-level kind of sensory awareness and responsiveness that occurs when the mind inputs sensations and may output behavior
- **Full consciousness:** Consciousness in which you know and are able to report your mental state.
- **Self-consciousness:** A distinct level of consciousness in which the person's attention is drawn to the self as an object.
  - Rouge Test

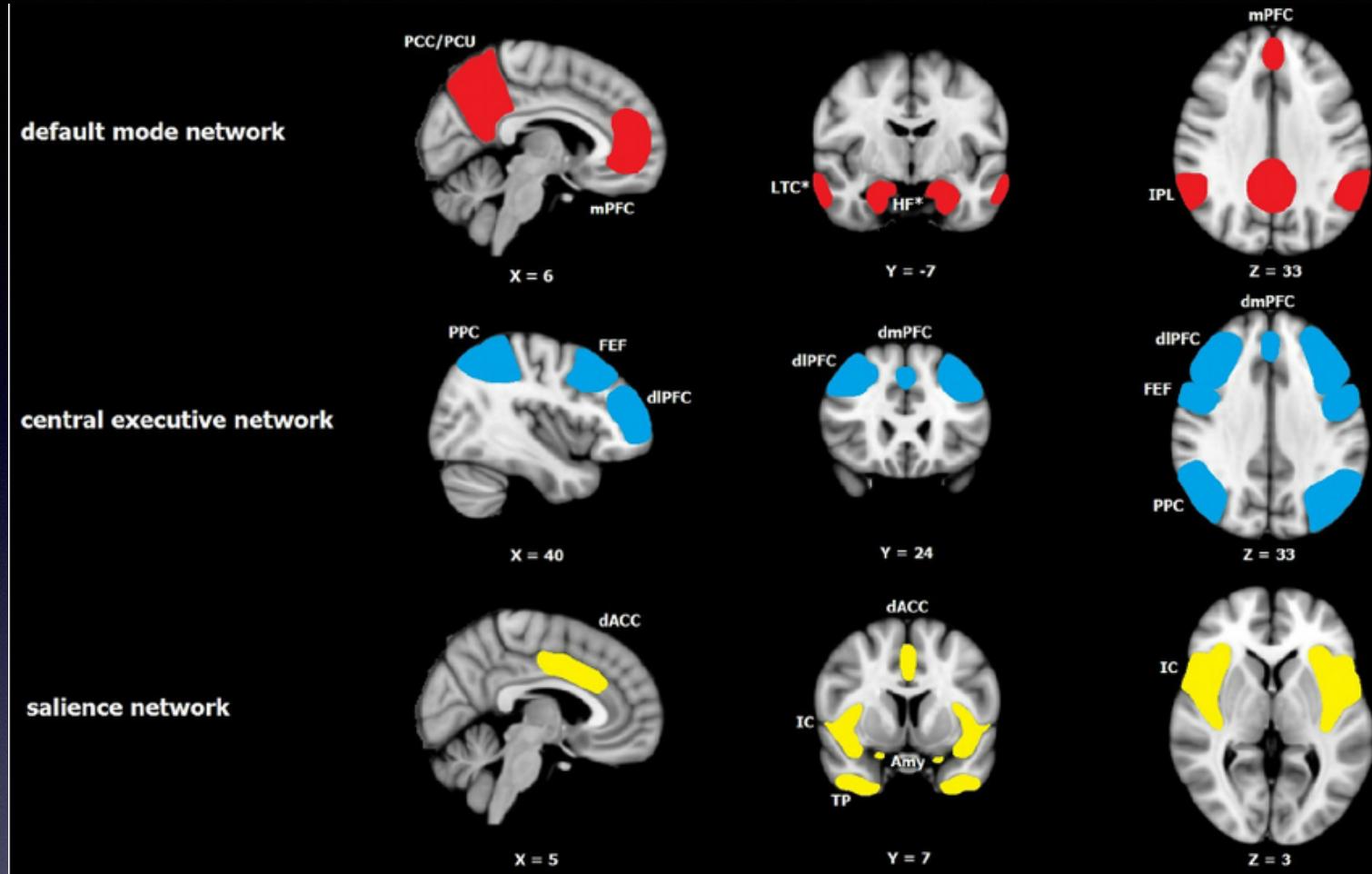
# The Rouge Test: Self-Recognition

# Levels of Awareness

- Automatic processes vs. controlled processes.



# Default Network



# Default Network

# Mental Control

... “His empty brain: Jump onto the desk. . . jump onto the desk. . .

Harry bent his knees obediently, preparing to spring.

Jump onto the desk....

Why, though? Another voice had awoken in the back of his brain.

Stupid thing to do, really, said the voice.

Jump onto the desk....

No, I don't think I will, thanks, said the other voice, a little more firmly. . . no, I

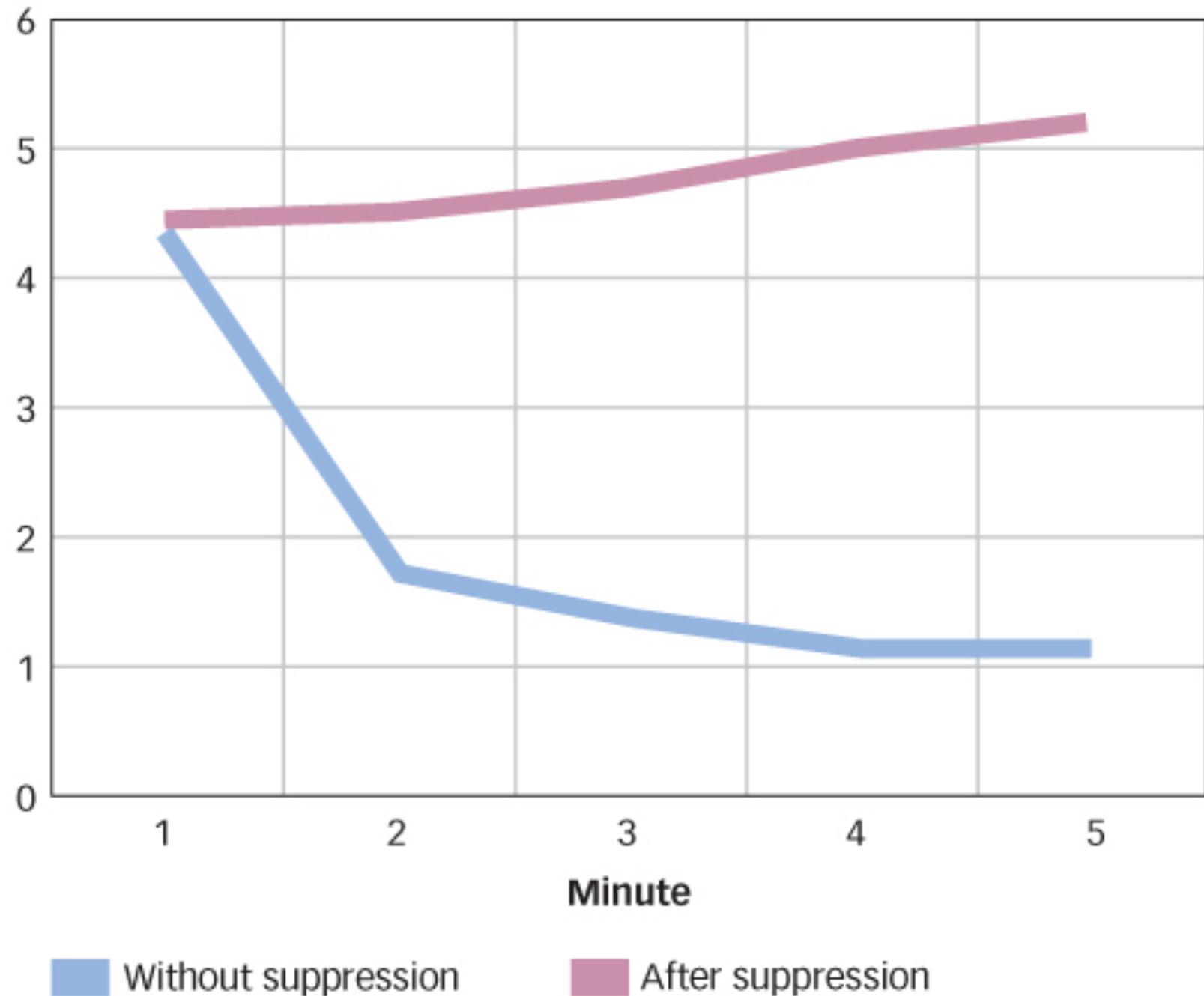
don't really want to. Jump! NOW!

Thought Suppression

The next thing Harry felt was considerable pain. He had both jumped and tried to prevent himself from jumping” (Rowling, 2000, p. 232)

Rebound Effect of Thought Suppression

Bell rings  
indicating  
thoughts  
of a white  
bear



# Psychoanalysis

- Freud and the **dynamic unconscious**
- Id, Supergo, & The Ego
  - Ego employs defense mechanisms to fight back.
- Freudian Slips



# Defense Mechanisms

Mechanism	Description	Example
Repression		
Denial		
Projection		
Displacement		
Regression		
Sublimation		
Reaction Formation		

# Defense Mechanisms

Mechanism	Description	Example
Repression	Keeps disturbing or threatening thoughts from becoming conscious.	Aggressive thoughts against others repressed.
Denial		
Projection		
Displacement		
Regression		
Sublimation		
Reaction Formation		

# Defense Mechanisms

Mechanism	Description	Example
Repression	Keeps disturbing or threatening thoughts from becoming conscious.	Aggressive thoughts against others repressed.
Denial	Blocking external events from awareness.	Refusal to admit smoking is wrong.
Projection		
Displacement		
Regression		
Sublimation		
Reaction Formation		

# Defense Mechanisms

Mechanism	Description	Example
Repression	Keeps disturbing or threatening thoughts from becoming conscious.	Aggressive thoughts against others repressed.
Denial	Blocking external events from awareness.	Refusal to admit smoking is wrong.
Projection	Attribute own unacceptable behaviors , thoughts, and feelings to others.	That person is such a jerk!
Displacement		
Regression		
Sublimation		
Reaction Formation		

# Defense Mechanisms

Mechanism	Description	Example
Repression	Keeps disturbing or threatening thoughts from becoming conscious.	Aggressive thoughts against others repressed.
Denial	Blocking external events from awareness.	Refusal to admit smoking is wrong.
Projection	Attribute own unacceptable behaviors , thoughts, and feelings to others.	That person is such a jerk!
Displacement	Satisfying an impulse with a substitute.	Kick dog out of anger towards boss.
Regression		
Sublimation		
Reaction Formation		

# Defense Mechanisms

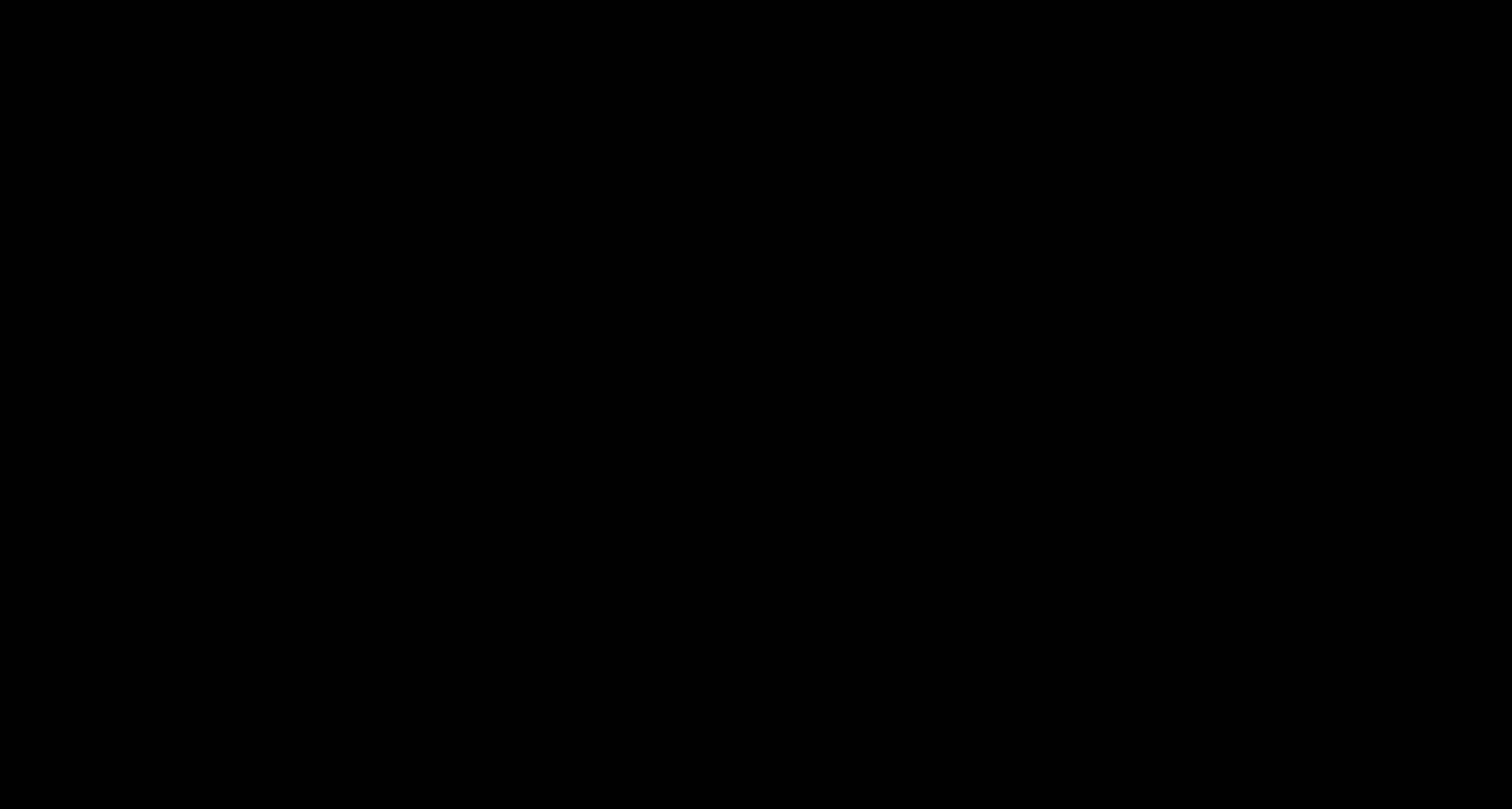
Mechanism	Description	Example
Repression	Keeps disturbing or threatening thoughts from becoming conscious.	Aggressive thoughts against others repressed.
Denial	Blocking external events from awareness.	Refusal to admit smoking is wrong.
Projection	Attribute own unacceptable behaviors , thoughts, and feelings to others.	That person is such a jerk!
Displacement	Satisfying an impulse with a substitute.	Kick dog out of anger towards boss.
Regression	Movement back in psychological time when stressed.	Sucking your thumb.
Sublimation		
Reaction Formation		

# Defense Mechanisms

Mechanism	Description	Example
Repression	Keeps disturbing or threatening thoughts from becoming conscious.	Aggressive thoughts against others repressed.
Denial	Blocking external events from awareness.	Refusal to admit smoking is wrong.
Projection	Attribute own unacceptable behaviors , thoughts, and feelings to others.	That person is such a jerk!
Displacement	Satisfying an impulse with a substitute.	Kick dog out of anger towards boss.
Regression	Movement back in psychological time when stressed.	Sucking your thumb.
Sublimation	Satisfying an impulse with a object socially acceptably.	Playing sports to deal with anger.
Reaction Formation		

# Defense Mechanisms

Mechanism	Description	Example
Repression	Keeps disturbing or threatening thoughts from becoming conscious.	Aggressive thoughts against others repressed.
Denial	Blocking external events from awareness.	Refusal to admit smoking is wrong.
Projection	Attribute own unacceptable behaviors , thoughts, and feelings to others.	That person is such a jerk!
Displacement	Satisfying an impulse with a substitute.	Kick dog out of anger towards boss.
Regression	Movement back in psychological time when stressed.	Sucking your thumb.
Sublimation	Satisfying an impulse with a object socially acceptably.	Playing sports to deal with anger.
Reaction Formation	Hide feelings by adopting exact opposite feelings; exaggerated.	“Proving” one’s heterosexuality if homosexual and taught it was wrong.



Subliminal Messaging

# Unconsciousness

- **Subliminal Messages**
  - Aging Words & Walking
- **Cognitive Unconscious**

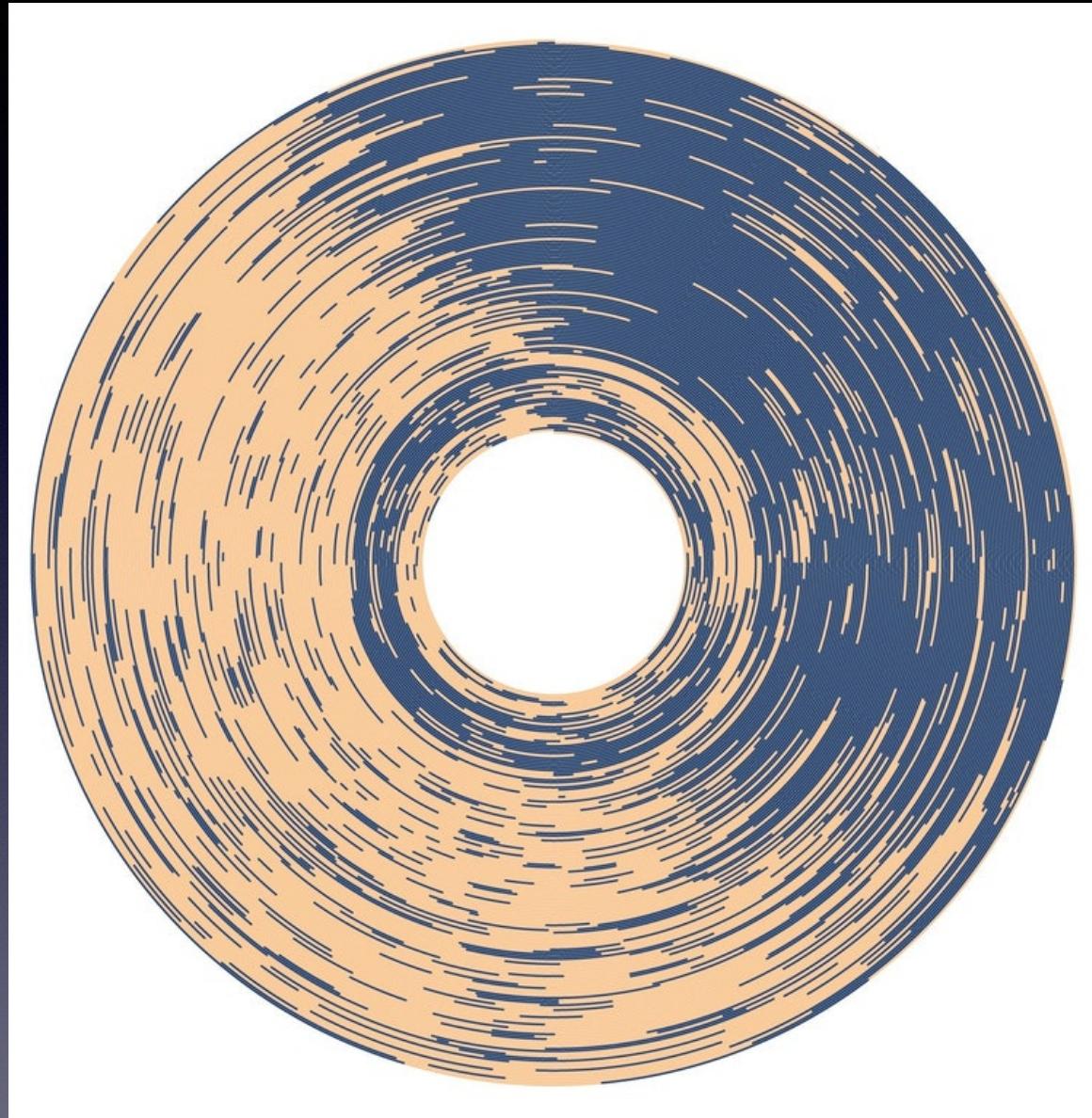
# Hypnosis

- **Hypnosis:** Social interaction in which one person makes suggestions that lead to a change in another person's subjective experience of the world.
  - **Post-hypnotic amnesia**
  - **Hypnotic Analgesia**

# Sleep

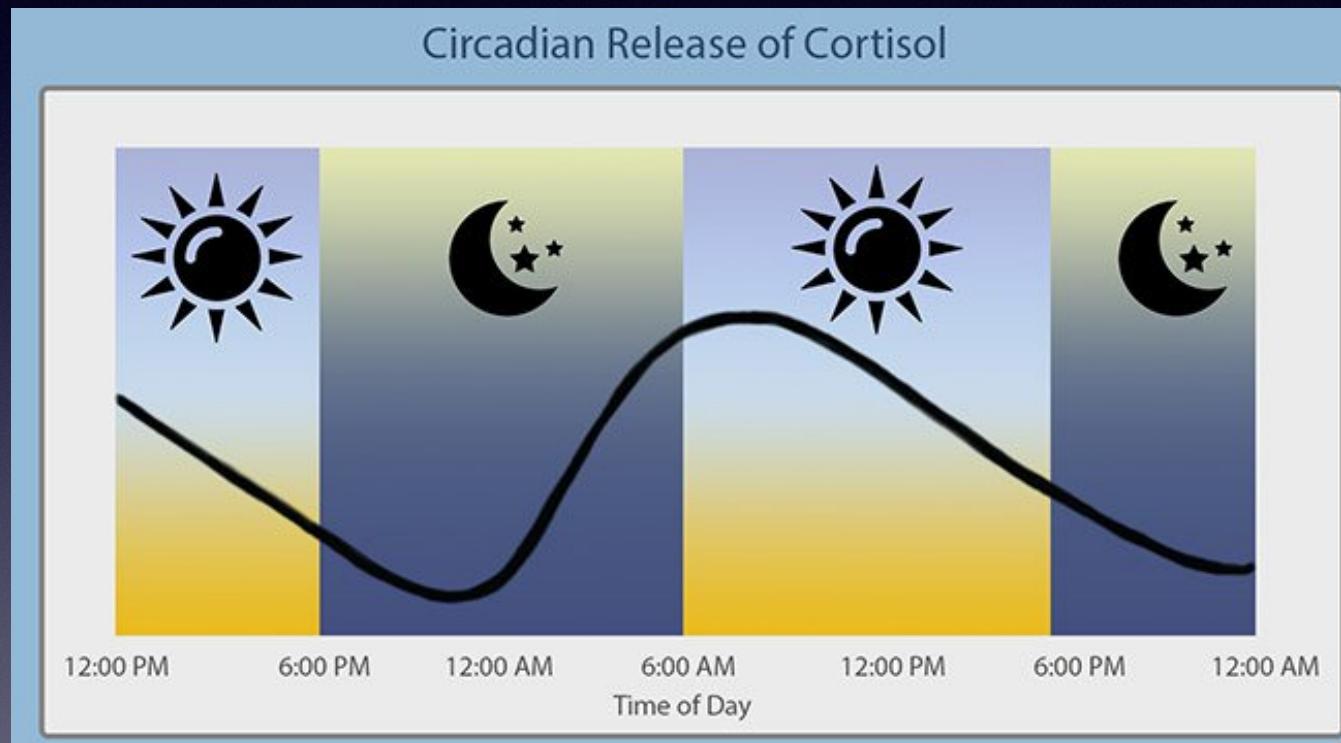
- REM Sleep - a stage of sleep characterized by **rapid eye movements** and a high level of brain activity.
  - Higher likelihood to have dreams during this stage.
    - Freud: Latent Content
    - Activation-Synthesis Model
- NREM Sleep Stages
- **Electrooculograph**

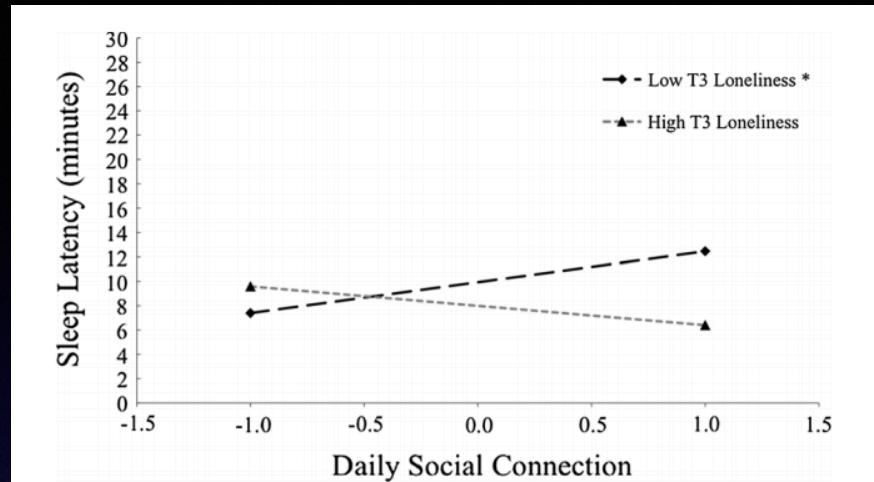
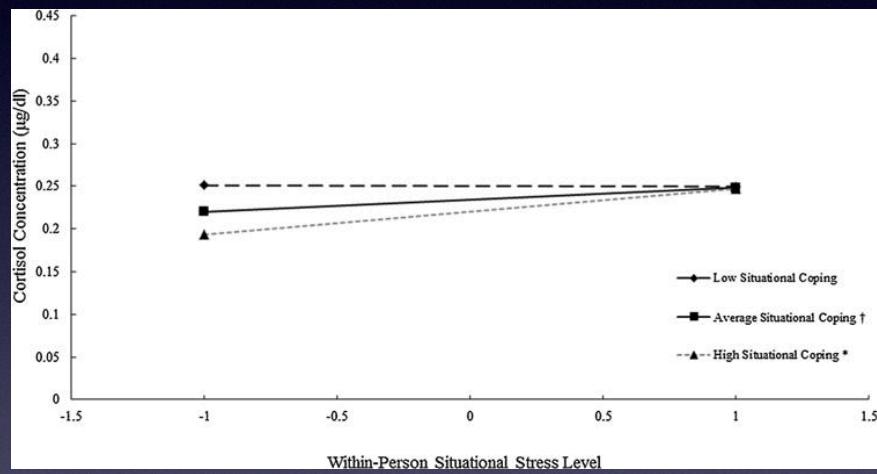
**Circadian rhythm** - a cycle of bodily rhythm that occurs over a 24-hour period.



# Sleep

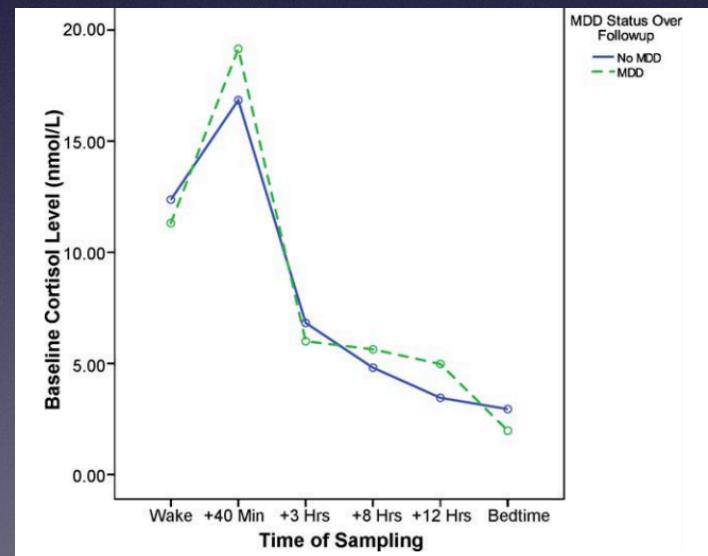
- Cortisol





**Fig. 3** Simple slope plots of sleep latency by within-person differences in daily social connection (1.0 SD above and below the within-person mean) at 1.5 SDs above and below the mean of T3 loneliness (adjusting for T1 loneliness). \* $p < .05$

Adam, E. K. Doane, L. D. et al. doi.org/10.1016/j.psyneuen.2009.12.007



**Figure 1** Baseline diurnal cortisol profiles of participants who do (dashed line) and do not (solid line) go on to develop an MDD

# Importance of Sleep

- **Adaptive Theory of Sleep:** We sleep when predators are most active.
- **Restorative Theory:** We sleep to replenish chemicals and repair cellular damage.
- **Consolidation Theory:** We are consolidating experiences into stored memories as we sleep.

# Importance of Sleep

- **Sleep Deprivation** - Any significant loss of sleep, resulting in problems in concentration and irritability.
  - Weight gain, muscle loss, increased cortisol.
  - “Taking a naked, cold, severely sleep-deprived and calorie-deprived person, slamming him against a wall, putting him in stress positions, slapping him around, waterboarding him, and then sticking him in a small box could easily produce great mental suffering, especially if the CIA did those things more than once.”

# Sleep Disorders

- **Insomnia:** Trouble falling asleep or wake up too frequently
  - **Sleep apnea**
  - **Somnambulism**
  - **Narcolepsy**
    - Sleep Paralysis
    - Hypnagogic Hallucinations
    - Cataplexy
  - **Night Terrors**

# Sleep Hygiene

- Associations with bed/bedroom
  - If you can't sleep, get up!
- Exercise & Healthy Eating
- Avoiding Caffeine & Alcohol
- Keep your schedule!



# Mediation & Mindfulness

- **Mediation:** Practice of internal contemplation
  - Rest, Revitalization, Well Being
  - Long-term effects unclear
  - Improve attention control
- **Mindfulness:** State of active, open attention on the present.
- **Mindfulness Mediation:** Teaches an individual to be fully present in each moment; to be aware of his or her thoughts, feelings, and sensations; and to detect symptoms before they become a problem.