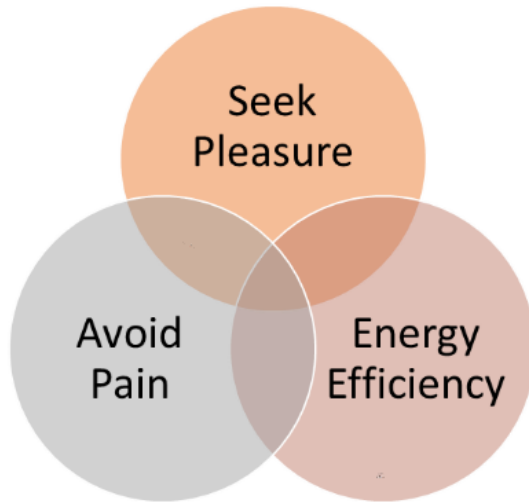


Trauma, Neurobiology, & Addiction

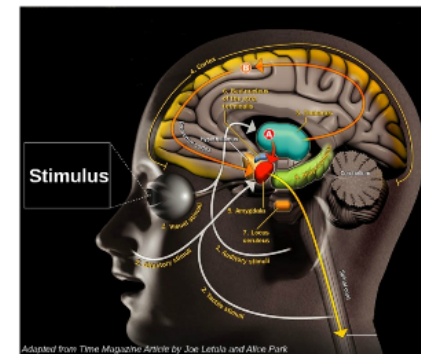


*"The question is never '**Why the addiction?**' but '**Why the pain?**'"*
- Dr. Gabor Mate

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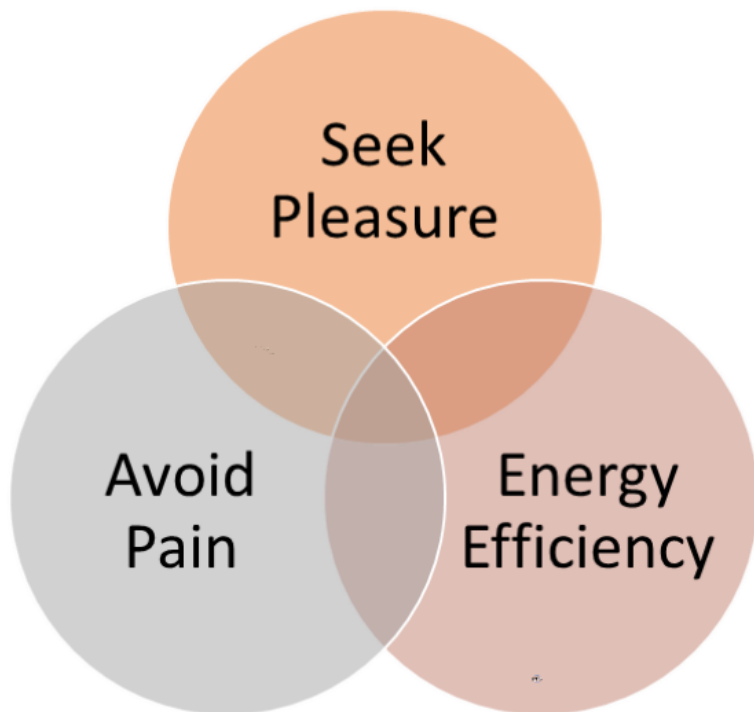


Trauma Defined

Trauma Defined - Stress-inducing traumatic events that overwhelm the individual's capacity to cope, leading to a long-term, debilitating impact on the individual's ability to function and their ability to trust others and themselves.



Trauma, Neurobiology, & Addiction



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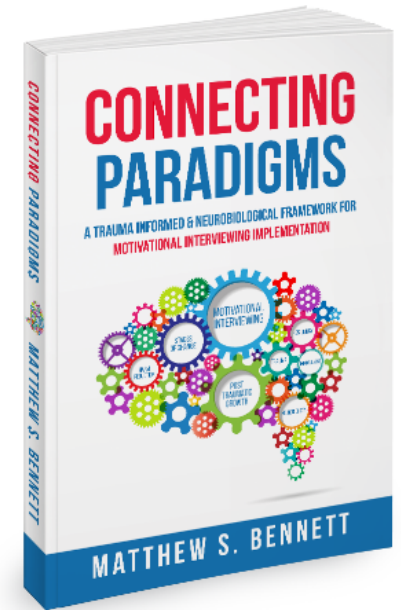
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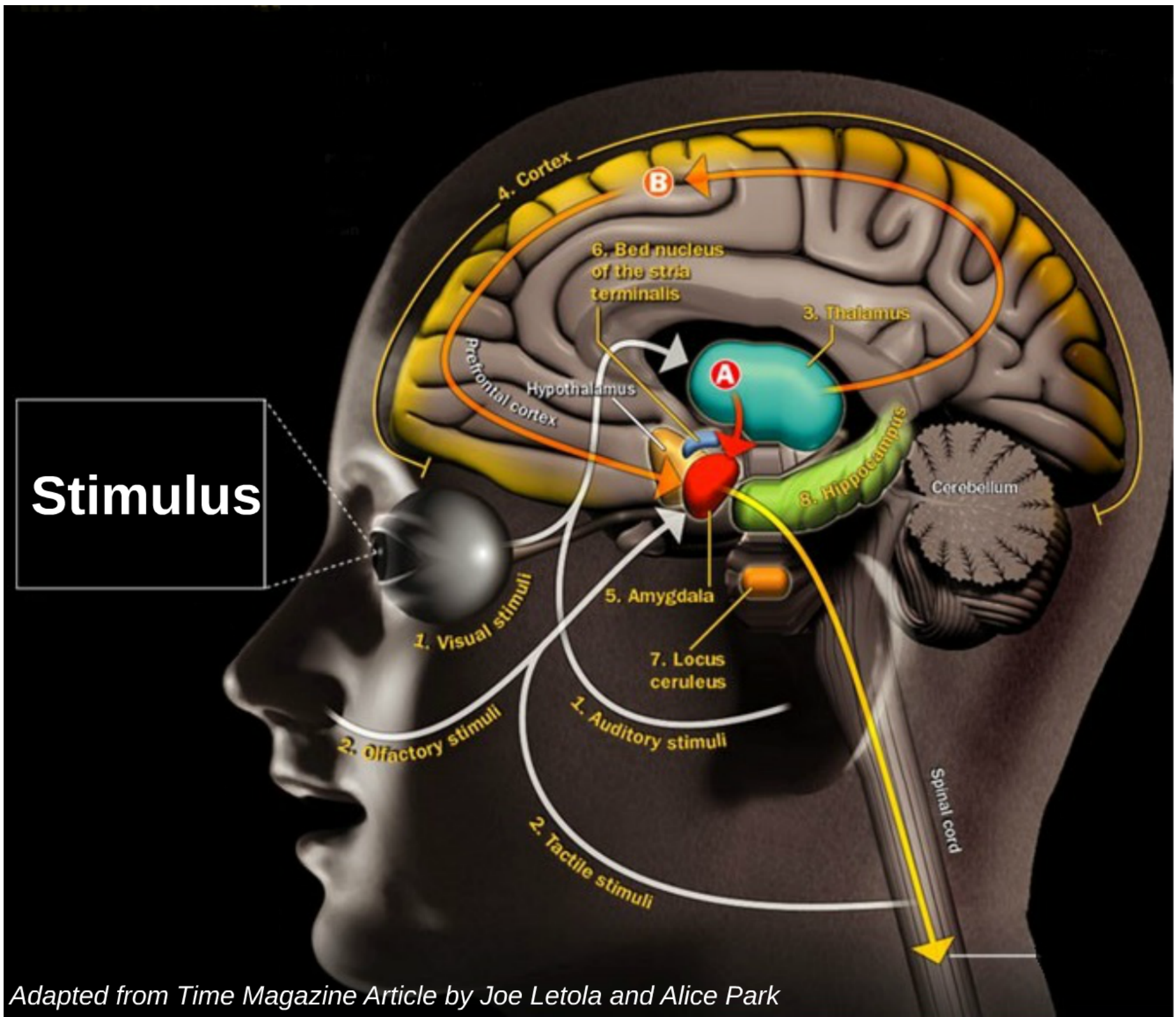
Trauma Defined

Traumatic Event – Events involving intense stress that overwhelms the nervous systems capacity for regulation, resulting in an existence dominated by the trauma

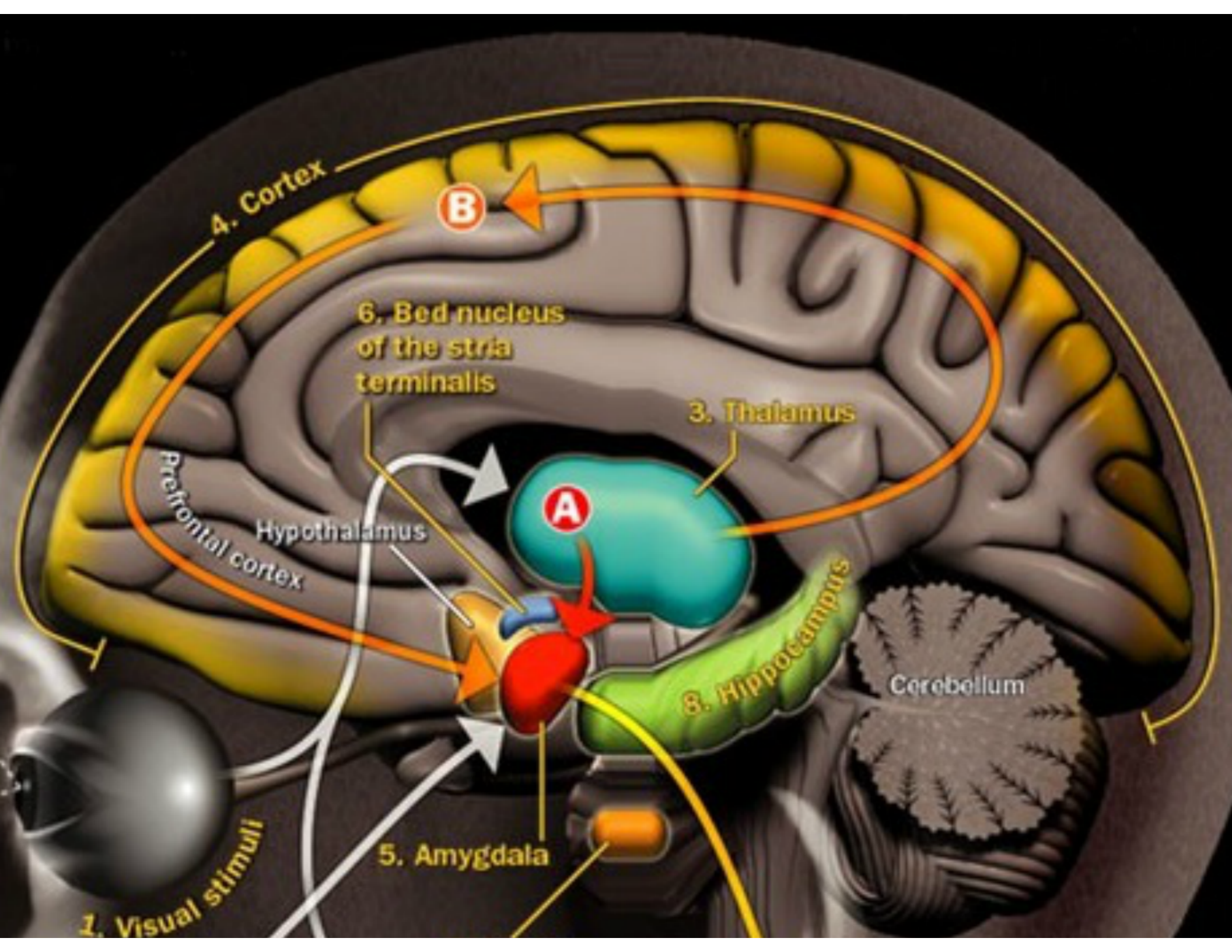
Sustained Trauma - Living in high stress environment and in the shadow of the threat of traumatic events occurring at any time

Compound/Complex Trauma – Combination of traumas occurring over an extended period of time

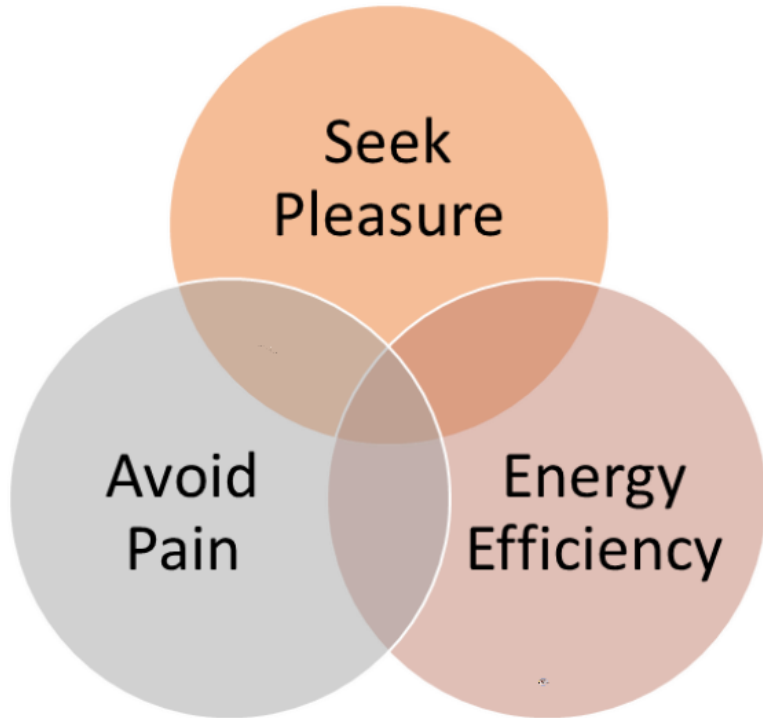




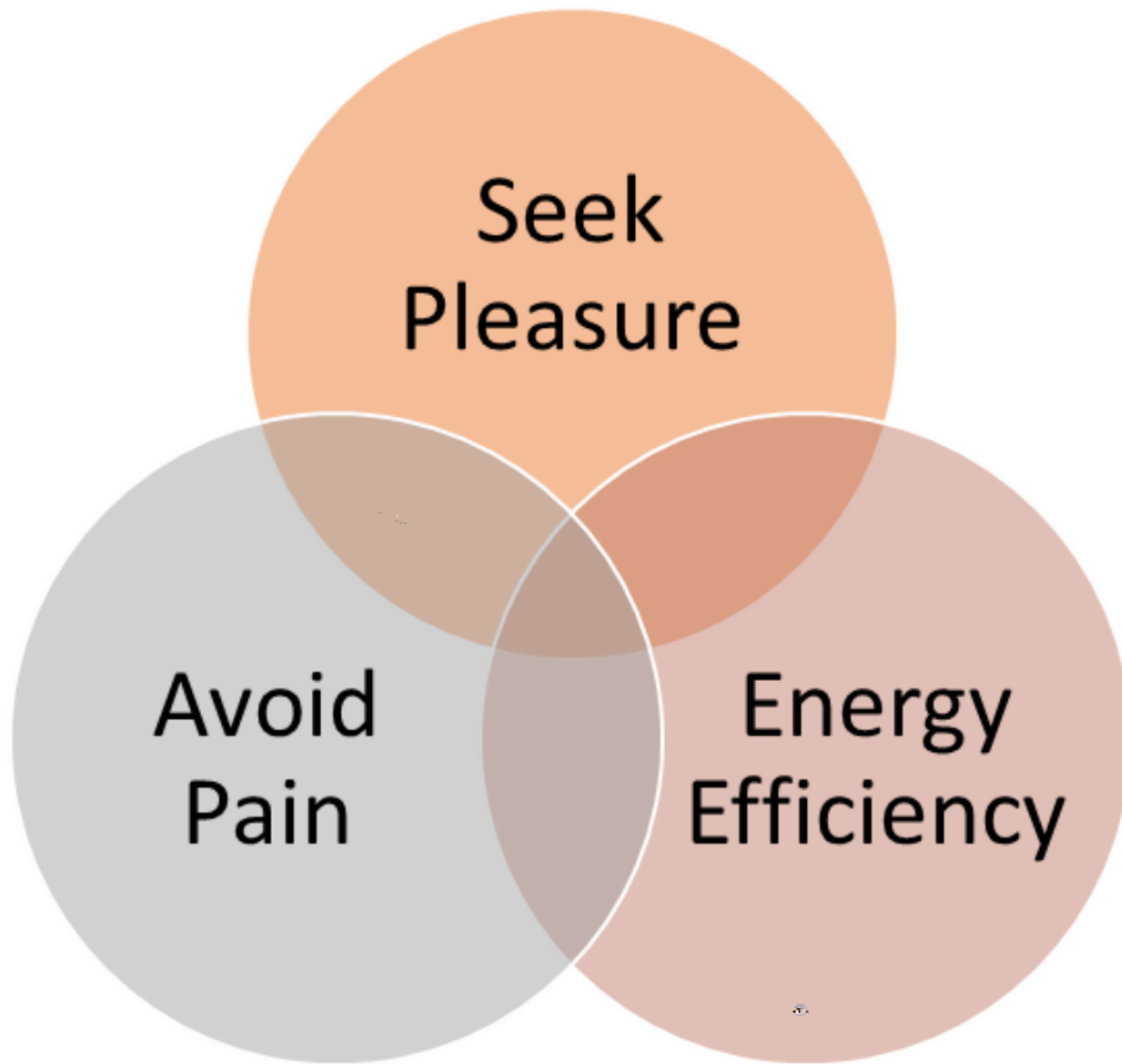
Adapted from Time Magazine Article by Joe Letola and Alice Park



Trauma, Neurobiology, & Addiction



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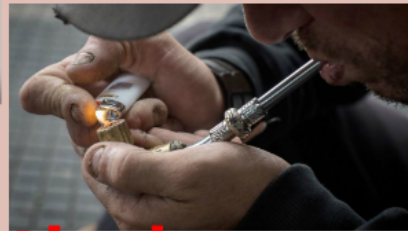


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Energy Efficiency

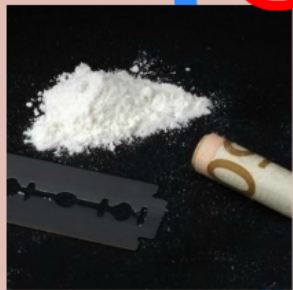


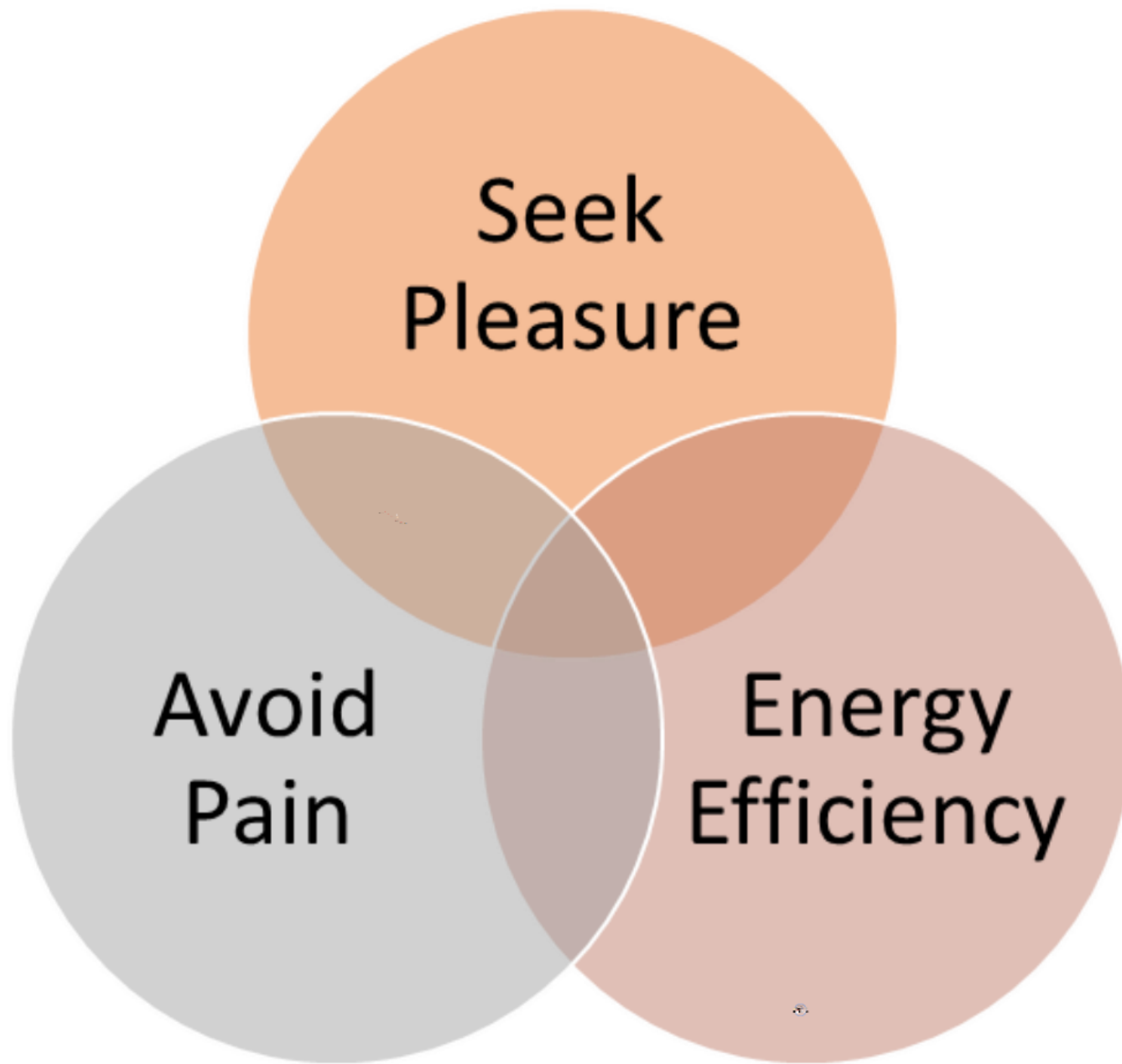
Two Paths to Elevating Traumatic Pain & Memories



Get High

Working through
your Issues!!





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Trauma & Drug Use

Self-Medicating - Attempt to relieve emotional and physical pain and experience some pleasure

Manhattan residents surveyed 5-8 weeks after attacks:

- 30% overall increase of substance use
- 25% increase in alcohol intake
- 20% reported at least one additional drink per day
- 10% increase in tobacco use
- A dramatic increase in sales of alcohol, tobacco, and prescription drugs

Biology of Pain

- Pain is the brain's experience of sensations, coming from our biology
- Emotional pain is processed similarly to physical pain



You **Tube**

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Reality of Addiction

3 factors of addiction

- Susceptible organism
- A drug/behavior with addictive potential
- Stress
 - 20% of vets returning from Vietnam met the criteria for addiction while in Vietnam
 - 1% remained addicted once returning home
 - 95% remission rate

Drugs increase the severity of trauma symptoms

Dopamine & Endorphins

Dopamine: Hormone and neurotransmitter that just makes us feel great!

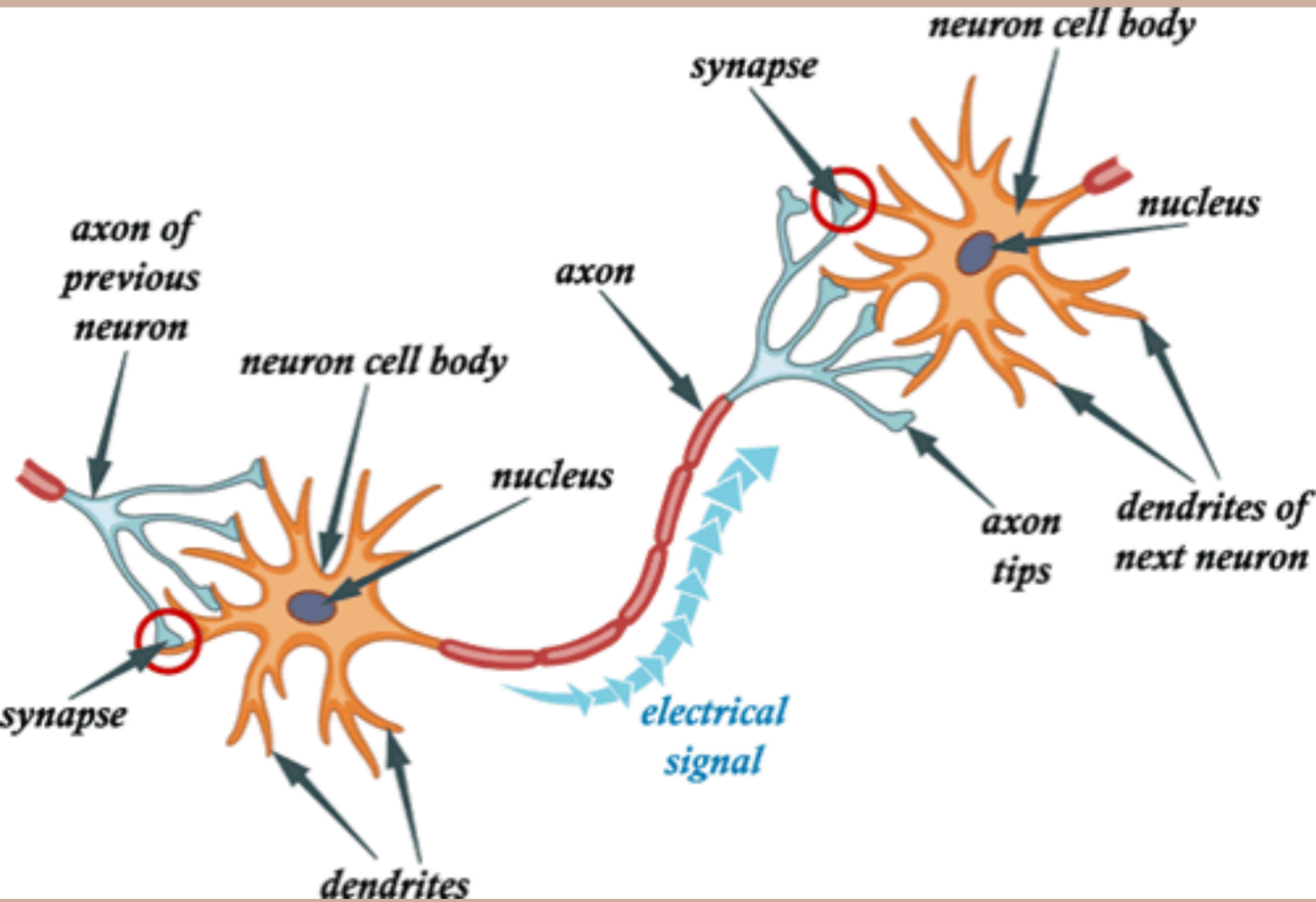
Endorphins: Naturally produced proteins that act as chemical messengers

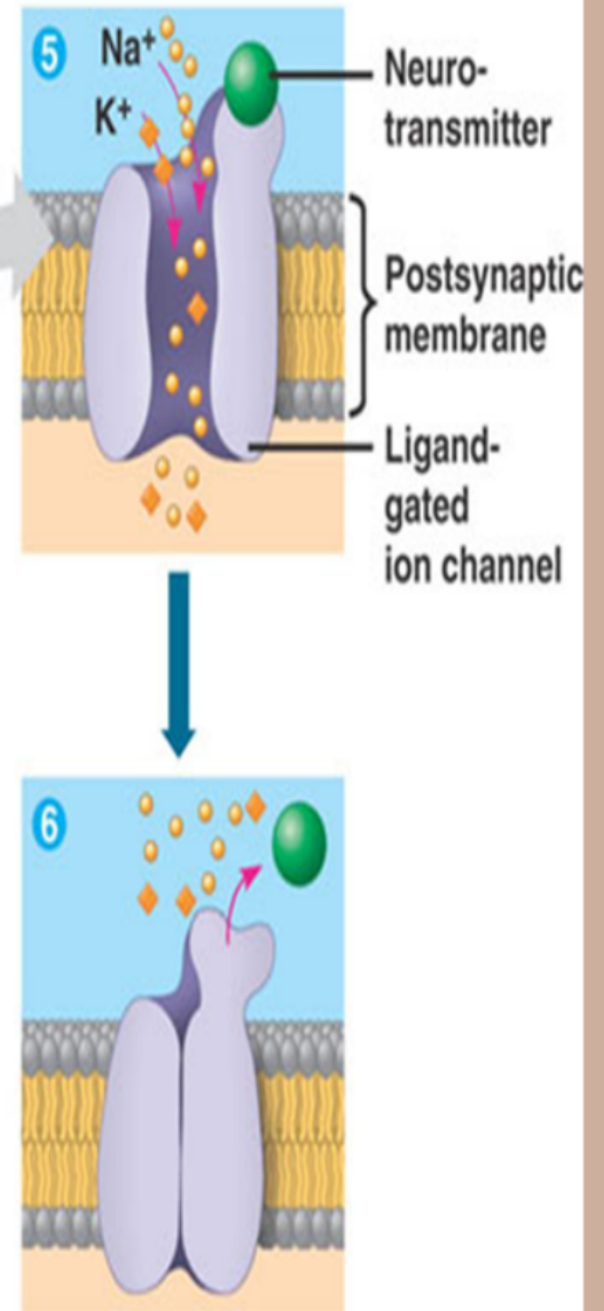
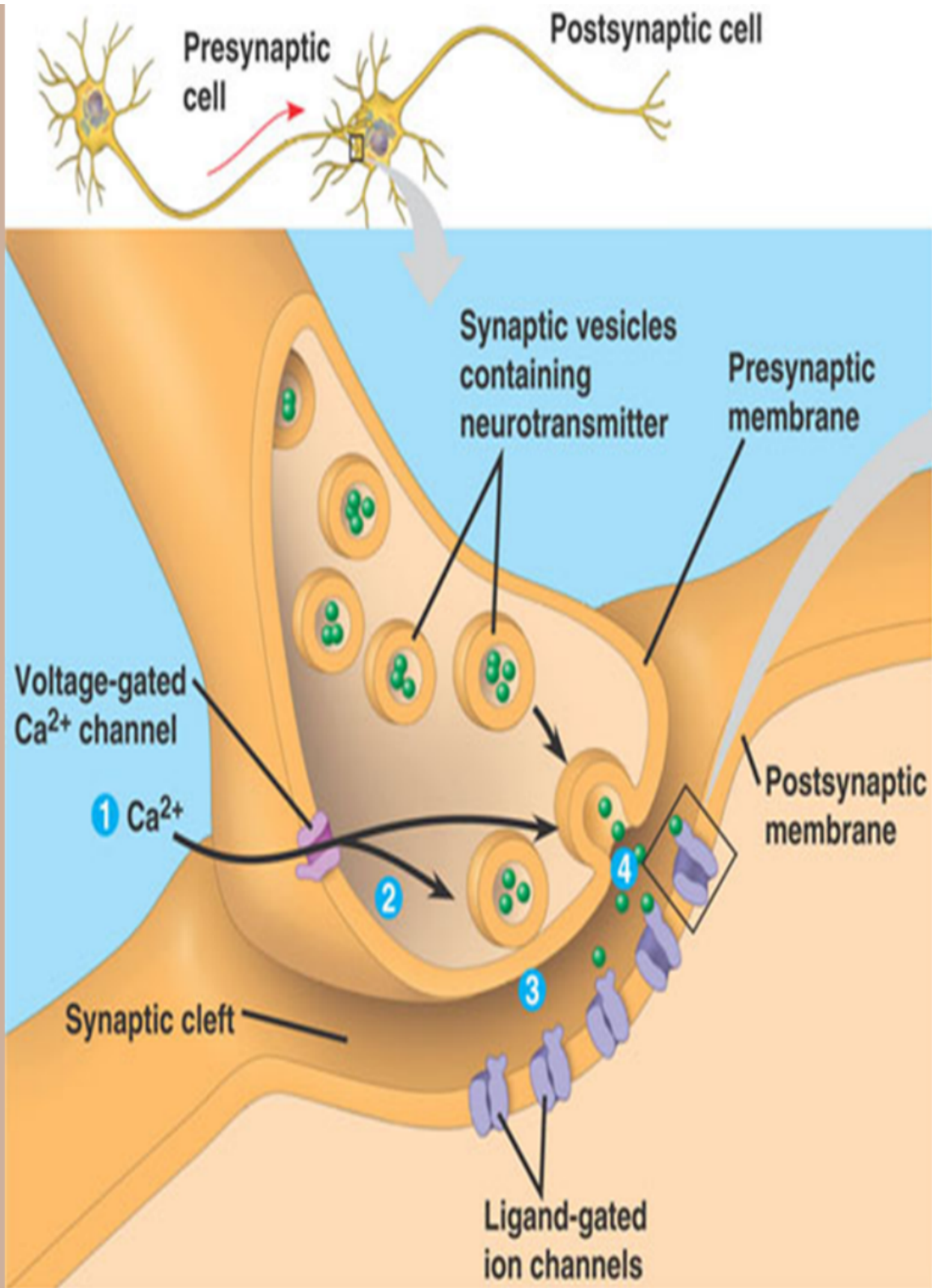
- Reduce the experience of pain in the brain
- General feeling of well-being
- When depressed – endorphin receptors are less active

Both and critical role in motivation:

- Things that bring us pleasure result in dopamine and endorphin release in the brain
- Our brain loves and moves towards things that cause this release

Trauma shuts down dopamine and endorphin receptors





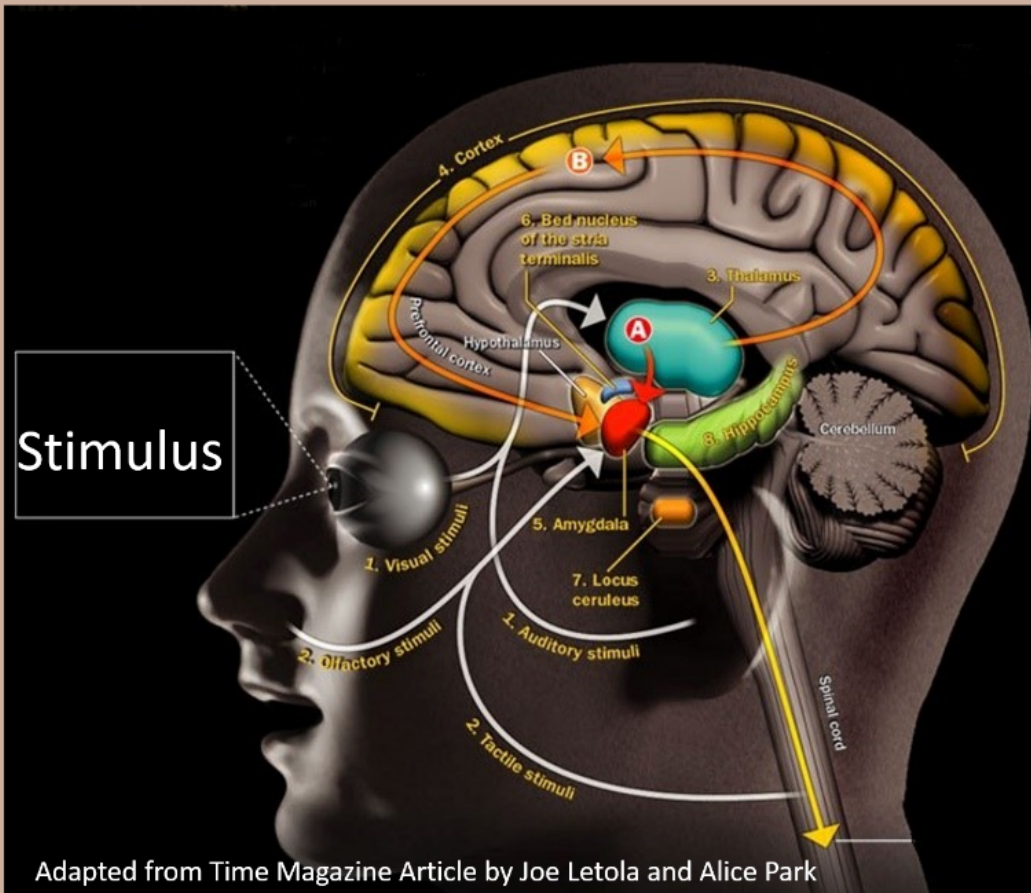
Biology of Addiction

- **Pre-use:** Brain establishes a baseline to a certain dopamine/endorphin level
- **Repeated use:** When flooded with dopamine/endorphin from drug use, brain re-establishes baseline by reducing number of receptors
- **Withdrawal:** Diminished number of receptors no longer generate baseline without drugs. Lack of dopamine/endorphin uptake results in irritability, depressed mood, alienation, and extreme fatigue.
- **Tolerance:** Decreased receptors requires more drugs to reach baseline
- **Addiction cycle:** More use leads to increased loss of receptors; the fewer receptors, the more drug needed to make up for the lack of receptors....and so on and so on
- **Relapse:** Environmental clues associated with drug use trigger dopamine/endorphin release that the brain associates with the pleasure of using

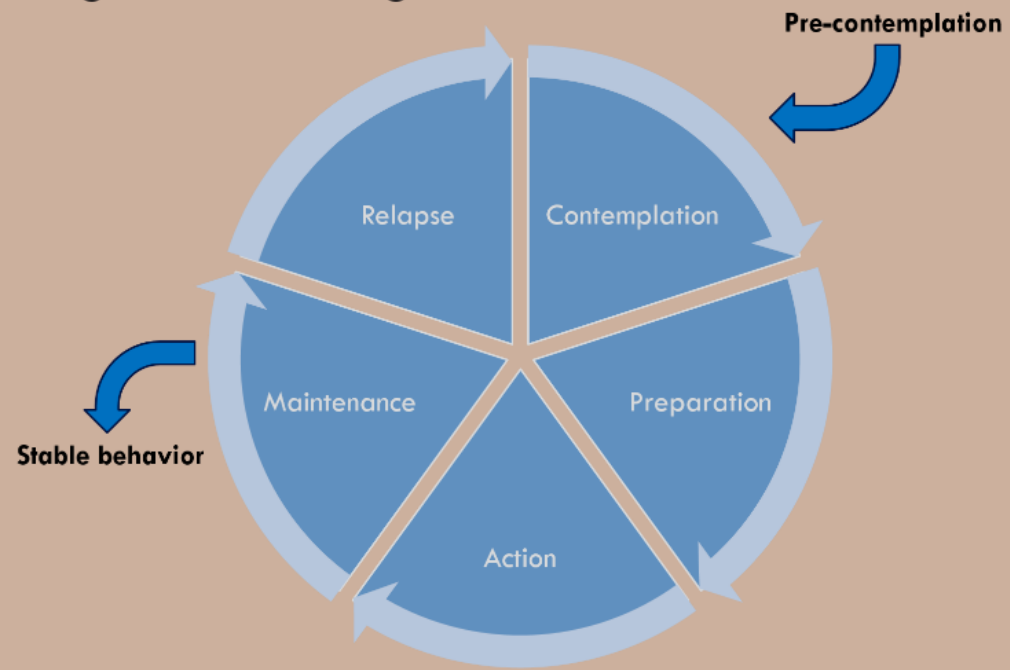
Biology of Addiction & Human Development

Addiction and biological development

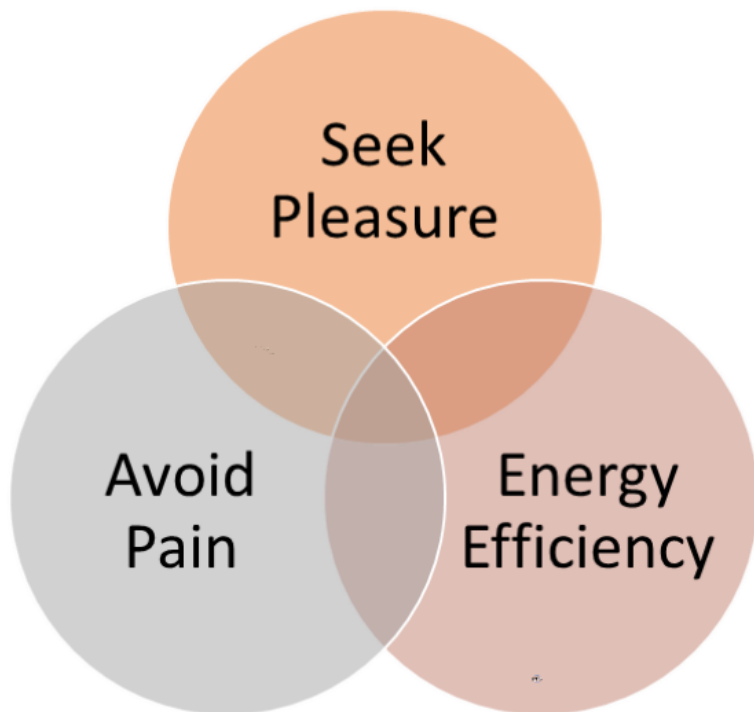
- Brain's white matter (fatty white tissue making synaptic connections more efficient) increases with age and experience
- Addiction limits or stops the formation of age-related white matter, resulting in decreased ability to:
 - Make new choices (volition)
 - Adapt to change in circumstances
 - Consider short and long-term consequences
 - Inhibit of pleasure seeking/pain reducing behaviors
 - Recognize of social cues needed to function in relationships
 - Access executive functioning
- Grey matter (bodies of brain cells) in the cerebral cortex and pre-frontal cortex decreases in correlation to years of use



Stages of Change Model



Trauma, Neurobiology, & Addiction



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