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Mechanisms of Trauma and Self-Management

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Self -introduction

Retired after working for a financial institution for about eight years.

I went on to graduate school and obtained a license as a clinical psychologist.

After graduating, I worked in medical institutions. Such as Psychosomatic Medicine, Psychiatry and Return-to-Work Facility

Established Denenchofu Counseling Office

International Certification:
Ego State Therapy,
SE Certified Practitioner

Psychotherapy : Cognitive behavioral therapy for schizophrenia

Treating mood disorders such as depression and anxiety disorders

Refractory clients have trauma

Acquisition of trauma-related techniques such as EMDR, SE, SP, ego state therapy, BSP, etc

Compatible with unilateral PTSD, complex PTSD, developmental trauma disorder, and DESNOS

Also suitable for dissociative disorders and dissociative identity disorder

Introduction

For example, I had a client like:

A : After being physically punished in a high school club, they have been suffering from tension and insomnia ever since. they feels lonely at university, are afraid to talk to their seminar teacher and is unable to attend classes, and feels anxious about completing assignments. After graduating, they worked for a major company but were unable to do his job well and became dependent on his partner. After breaking up with their partner, they were unable to wake up in the morning and quit their job. Even after that, they were unable to continue working due to difficulty in coming to work and concentrating.

B : They grew up in an environment of conflict between their parents and an overly intrusive mother. They cry over trivial discussions, becomes very tense in interpersonal situations, speaks in a logical manner that makes it difficult to build relationships, panics when things don't go well at work, and is overwhelmed by information and unable to organize it properly. (Psychological testing has confirmed his tendency toward

C : Repeatedly cuts their wrists and overdoses , have a strong desire to die, feels that nothing matters, lives a monotonous life without any emotion, are perceived as unsociable by others and have become estranged from others (have an irritable father with PDD tendencies and an overly intrusive mother)

Common Symptoms of Trauma

- Body
  - Insomnia, restlessness, suspicious behavior, hypervigilance, overeating
  - Excessive sleepiness, heaviness, fatigue, anorexia
- Action
  - Problematic behaviors such as interpersonal conflicts, excessive complaints, overly frequent contact, over-attentiveness, sexual misconduct, overdose, and self-harm (e.g., wrist-cutting)
  - Unable to go to school or work, avoiding social situations, not responding to calls, unsociable
- Emotion
  - Anxiety, fear, irritability, blaming others, excessive trust
  - Depression, loneliness, sadness, lack of confidence, self-blame, distrust
- Cognition
  - Black and white thinking, catastrophic thinking, should thinking, worry thinking, ruminative thinking, hyperfocus
  - Slow thinking, inattention, poor memory, disorientation

Questions About Trauma

For example

- What is trauma and how is it different from stress ?
- Is it something that happens often or rarely?
- What happens when it becomes traumatic?
- What are the symptoms of trauma?
- Why is trauma so difficult to heal?
- How can it be cured?
- What should I do if I become traumatized?

→Trauma is a familiar emotional wound that everyone experiences at least once or twice.

→There is a great possibility that you have some kind of trauma

→ Knowing about trauma is beneficial from the perspective of self-regulation

Today's Content

1. Types of Trauma

(1) Stress response

(2) Trauma reaction

①Acute stress disorder and dissociation

②Post -traumatic stress disorder

③ Complex PTSD

④ Developmental trauma disorder

a. Adverse childhood experiences

b. Attachment trauma

2. The mechanism of Trauma

(1) Fight / Flight / Freeze

(2) Bottom-up and top-down

(3) Sending warning signals

(4) Traumatic memories

(5) Bias in input information

(6) Closed neural circuits surrounding the amygdala

(7) Dissociation that complicates trauma (structural dissociation of personality)

3. Trauma therapy and self-Management

(if you have time) Stability exercises
→ Grounding, self-touch, moving slowly, etc.

1. Types of trauma

(1) Stress Response

Subthreshold trauma response

Stressors and the stress response

Stressors: External pressure

Stress response: An object in a distorted state

- Physical stressors (temperature, noise, vibration, etc.)
- Chemical stressors (pollen, pollution, drugs, etc.)
- Psychological and social stressors (interpersonal relationships, family problems, time constraints, etc.)

When these stressors are applied to a person, a stress response occurs.

Physiological Aspects for Stress Responses

- Hans Selye's Theory of Stress: Organisms exposed to stressors undergo physiological reactions (stress responses) to adapt to harmfulness

(Experiment using mice)

Various stressors are applied → Three symptoms appear

(1)Hypertrophy of the adrenal cortex (2)Atrophy of the thymus (3) Ulcers and bleeding in the stomach and duodenum

↓

-Excessive secretion of cortisol from the adrenal cortex causes the adrenal glands to enlarge

-The thymus atrophies, which reduces the production of T cells and weakens the immune system.

-When the adrenal cortex becomes exhausted and cortisol is depleted, you become lethargic.

The function of cortisol

- Anti-stress effect

Stimulates the sympathetic nervous system, increasing pulse rate and blood pressure. Amplify motor function and awaken the brain.

- Promotes gluconeogenesis and increases blood sugar levels

Synthesizes glucose from muscle proteins. Limiting glucose use in tissues other than the brain.

- Promote lipolysis

Breaks down fat for alternative energy.

- Anti-inflammatory effect

Suppresses inflammation for healing and repairing injuries, ensuring energy for activity. Slower recovery from injuries.

- Immunosuppressive effect

Suppresses short-term immune function and ensures energy for activity in critical situations.

Long-term weakening of the immune system increases the risk of developing cancer and other diseases, and the decline in antioxidant activity accelerates the aging process.

Examples of symptoms caused by cortisol

Too much cortisol

Increased blood sugar levels, high blood pressure, obesity, amenorrhea, weakened immune system, increased muscle breakdown, osteoporosis, hippocampal atrophy, increased risk of Alzheimer's disease, insomnia such as difficulty falling asleep, etc.

⇨ Postponing repairs to the body, raising blood sugar levels, and increasing alertness prepares the body for a fight-or-flight defense against external enemies.

Cortisol depletion

Hypoglycemia, low blood pressure, weight loss, loss of appetite, increased immunity, lethargy, apathy, fatigue, increased anxiety, waking up in the middle of the night, fever, joint pain, insomnia such as waking up early in the morning, etc.

⇨ You will be unable to move due to exhaustion, or your stamina will be recovering.

Changes in stress response

Selye's General Adaptation Syndrome

1-1) Warning reaction period (shock phase)

The period immediately after a stressor is applied, when resistance is reduced.

1-2) Warning response period (anti-shock phase)

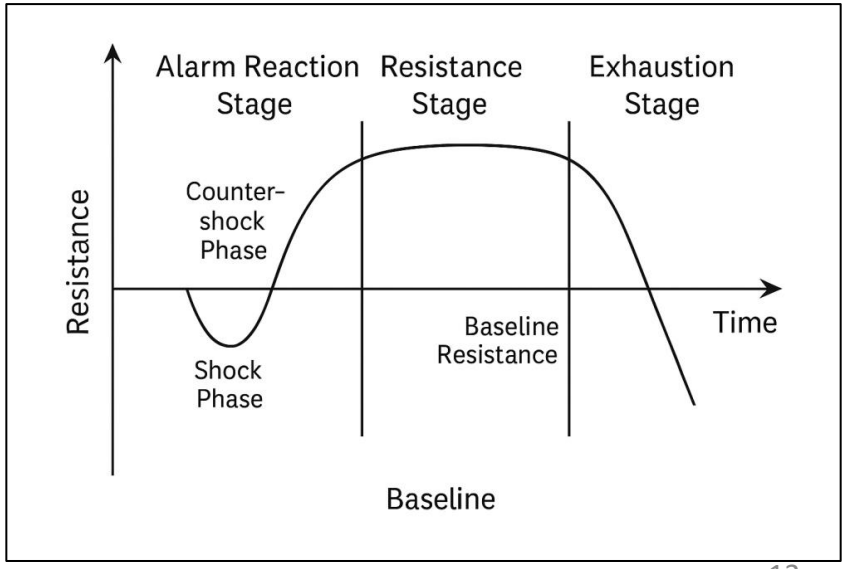
The period when the body's adaptation and defense responses to shock begin to work.

2) Resistance period

A stable period where persistent stressors and stress tolerance are in balance, but energy is consumed.

3) Exhaustion period

A state of being depleted of energy



(2) Traumatic Reactions

Big Trauma and Small Trauma

What is Trauma ?

■Traumatic stressor: An event that has a strong impact on a person's life or existence.

■Trauma (traumatic reaction): Emotional wounds caused by a stressor

- Natural disaster : Earthquakes, fires, typhoons, floods
- Physical trauma: violence, accidents, crime, abuse
- Social unrest: war, terrorist attacks, riots
- Loss experience: Death of a family member or friend.

→ Big T and Small T

→ What exactly is emotional wounds?

A fishing boat washed up at Ayukawa Fishing Port(March 20th , Oshika Peninsula, Ishinomaki City, Miyagi Prefecture)Ministry of Agriculture, Forestry and Fisheries website

U.S. Marines landing on Okinawa Island from the beach in Yomitan Village= April 1, 1945 (Okinawa Prefectural Archives) https://corp.ryukyushimpo.jp/okinawasen/sensou02

① Acute Stress Disorder

(ASD)

The onset of a traumatic reaction

Acute stress disorder

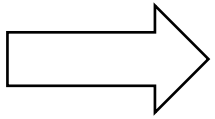
- Specific symptoms such as acute hypertension, digestive system inflammation, dissociative symptoms, flashbacks, and emotional dullness within 4 weeks of experiencing a traumatic stressor (BIG-T)

  •Diagnostic and Statistical Manual of Mental Disorders (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition:DSM-5)

- Involuntary, intrusive, and distressing memories of the traumatic event (e.g., Flashback)
- Recurring and distressing dreams about the traumatic event
- psychological or physiological distress
- Efforts to avoid distressing memories, thoughts, or feelings associated with the traumatic event
- Efforts to avoid external objects (people, places, conversations, activities, objects, situations) that evoke a traumatic event

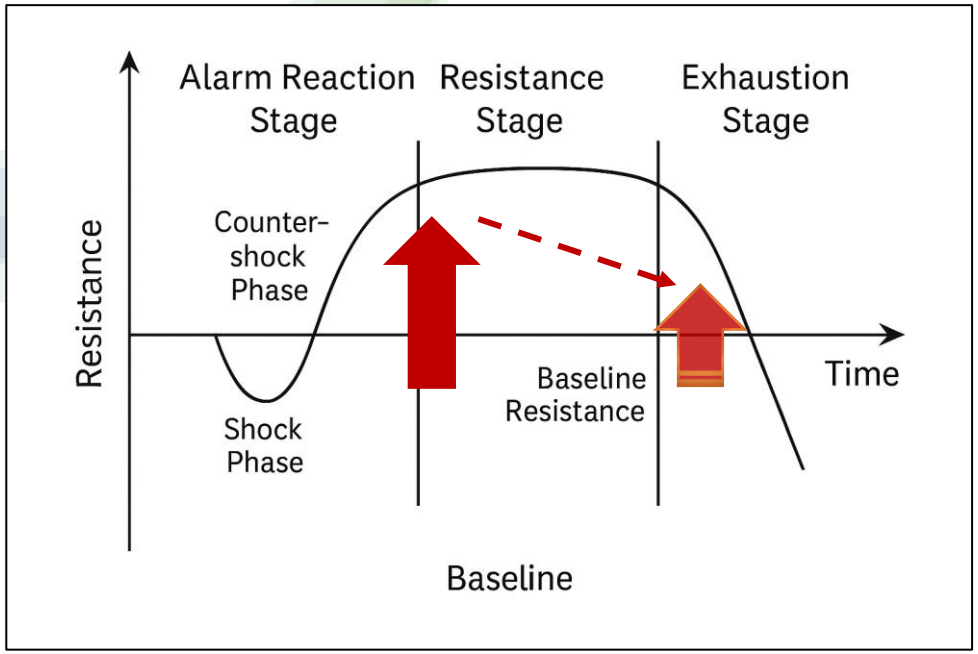
→ Continued in the next section

- Persistent inability to experience positive emotions (e.g., happiness, contentment, love)
- Altered perception of reality (e.g., feeling dazed , time slowing down , changes in perspective)
- Inability to recall significant parts of the traumatic event
- Sleep disorders
- Anger Outburst
- Hypervigilance
- difficulty concentrating
- Exaggerated startle response



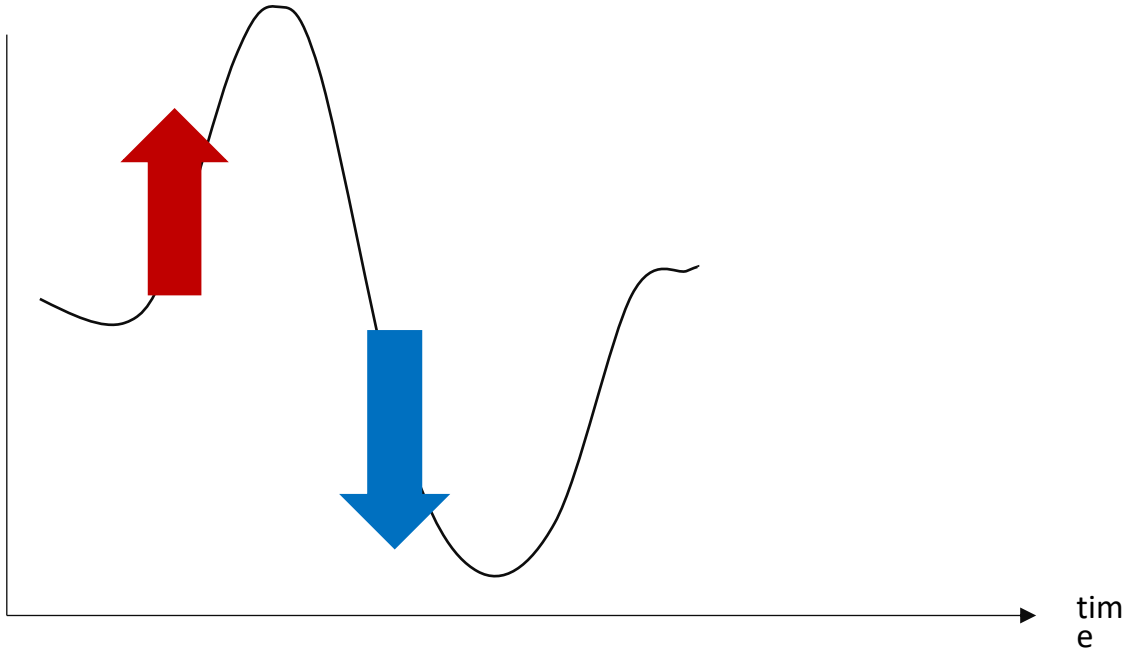
Unlike stress reactions, it is characterized by the presence of two phases: an extreme increase and an extreme decrease in the level of autonomic nervous arousal.

The difference between stress response and acute stress disorder



- Sympathetic nerves are activated and then weakened

  → Cortisol becomes depleted after secretion



- After activation, it calms down significantly.

→ After the sympathetic nervous system is activated, the dorsal vagus nerve is activated (biphasic response to trauma)

→Excessive calming can lead to dissociative symptoms

What is dissociation?

- A state in which the ability to organize sensations related to consciousness and memory is temporarily lost, resulting in a fragmentation of the components of experience, such as consciousness, memory, thoughts, emotions, perceptions, behavior, and the body.

-Four classifications: "pathological/healthy" and "psychological/biological"

1. Healthy and biological : You were so sleepy that you don't remember going to the bathroom in the middle of the night. Your sense of taste is numb due to the effect of the medication.
2. Pathological and biological : Concussion prevents recall of traffic accident
3. Healthy and psychological : You were so bored during the lecture that you zoned out and can't recall its content. You don't remember what was said while you were under hypnosis.
4. Pathological and psychological : dissociative disorders (→ next section)

Pathological psychological dissociation

↓

Dissociative disorders

- ICD-10 : Partial or complete loss of normal integration between past memories, awareness of identity and immediate sensations, and control of bodily movements.
- DSM-5 : Breakdown and/or discontinuity in the normal integration of consciousness, memory, identity, affect, perception, body representation, motor control, and behavior.

→A state in which the normally integrated functioning of the human mind has lost its coherence.

→A state in which the senses are separated from the subject of consciousness, such as memory loss, sensory paralysis and no pain, inability to move the body, or loss of awareness.

Distinctive dissociative symptoms

- **Dissociative Amnesia** : Loss of memory of a stressful event
- **Depersonalization-Derealization Disorder** : Feeling like you're looking at yourself from outside or like you're dreaming
- **Dissociative Fugue** : Loss of some or all memories of the past and disappearance from usual places, usually leaving family and work behind
- **Dissociative Identity Disorder** : Having multiple personalities
- **Unspecified Dissociative Disorder** : A condition that closely resembles dissociative identity disorder but does not meet all of its criteria.

→ Dissociation is always present in traumatic reactions

→More details later

② Post Traumatic Stress Disorder

(PTSD)

Post Traumatic Stress Disorder

- Acute stress disorder symptoms do not improve after one month

  → diagnosed with post-traumatic stress disorder

- Three features

  ① Re-experiencing trauma : Vivid intrusive recollections, flashbacks, and nightmares

  ② Avoidance/Numbing : Avoidance of thoughts, memories, activities, situations, or people that remind you of the trauma; emotional numbness; inability to recall memories

  ③ Persistent hyperarousal : Excessive excitement or startle response to unexpected noises or other stimuli

Diagnostic Items

Diagnostic and Statistical Manual of Mental Disorders, 5th edition, Text Revision (DSM-5-TR)

Intrusion symptoms (one or more of the following):

- Recurrent, involuntary, intrusive, and disturbing memories
- Recurrent, disturbing dreams (eg, nightmares) about the traumatic event
- Acting or feeling as if the traumatic event is happening again (from experiencing flashbacks to completely losing awareness of your current surroundings)
- Experiencing intense psychological or physiological distress when recalling a traumatic event (e.g., on its anniversary or triggered by sounds similar to those heard during the event).

Avoidance symptoms (one or more of the following):

- Avoiding thoughts, feelings, or memories related to the traumatic event
- Avoiding activities, places, conversations, or people that trigger memories of the traumatic event

→ Continued to the next section

Negative effects on cognition and mood (two or more of the following):

- Loss of memory for important aspects of the traumatic event (dissociative amnesia)
- Persistent and excessive negative beliefs or expectations about oneself, others, or the world
- Persistent distorted thinking about the causes or consequences of the trauma that leads to blaming oneself or others
- Persistent negative emotional states (e.g. , fear, horror, guilt, shame)
- Decrease in interest or participation in important activities
- Feelings of isolation or estrangement from others
- A persistent inability to experience positive emotions (e.g. , happiness, satisfaction, love)

Altered arousal and reactivity (two or more of the following):

- Sleep disorder
- Irritability or angry outbursts
- Reckless or self-destructive behavior
- difficulty concentrating
- Strong startle response
- Hypervigilance
- Symptoms must cause significant distress or significantly impair social or occupational functioning and not be due to the physiological effects of a substance or other physical illness

③Complex PTSD

(C-PTSD)

Complex PTSD

- Complex PTSD: Symptoms that appear after exposure to a significant threat or fear event for a long period of time or repetitively, in a situation from which it is difficult or impossible to escape.

- Not a major shock like PTSD (SMALL-T)

  Examples: discrimination, harassment, slander on social media , long-term domestic violence, discord between parents, bullying, sexual abuse, physical abuse, educational abuse, financial hardship, separation from caregivers.

  ↪ Long-term traumatic experiences in childhood, such as abuse, can disrupt attachment formation, and in such cases, they are now classified as developmental trauma disorders.

Disturbance of Self–Organization （DSO）

■In addition to PTSD symptoms, there are impaired self-organization

① Affect dysregulation: Emotions that fluctuate to the extreme and are difficult to control

② Negative self-concept : feelings of self-deprecation, failure, and worthlessness, accompanied by feelings of shame, guilt, and failure related to the traumatic event

③ Disturbances in relationships : Difficulty forming lasting connections or feeling close to others

Many concurrent diseases occur

- Co-occurring depression, anxiety, panic, dissociation, addiction, self-harm, eating disorders, etc.
- A weakened immune system makes people more susceptible to physical illnesses such as cancer, cerebral infarction, and myocardial infarction.
- Personality disorder
- Alcohol and drug dependence (self-medication in hyperarousal states of PTSD)
- Symptoms such as hysteria, somatization disorder, pain, and vague complaints are also observed.

⇨ Multiple illnesses may be named. If the symptoms of PTSD are not clear, it is called Disorder of Extreme Stress Not Otherwise .

⇨ In addition to diseases, trauma is hidden in problems such as hyperfocus, overwork, aggression towards others, passivity towards others, alcohol and drugs.

④ Developmental Trauma Disorder

(DTD)

a. Adverse Childhood Experiences (ACE)

Adverse Childhood Experiences (ACE)

- Repeatedly experiencing painful events related to "child abuse" or "dysfunctional family" over a long period from infancy to adolescence.
  - Physical abuse and neglect
  - Psychological abuse and neglect
  - Sexual abuse
  - Parental divorce and separation
  - Domestic violence (DV)
  - Family alcohol and drug addiction
  - Family members' mental illness and suicide attempts
  - Family members experiencing incarceration

Adverse Childhood Experiences (ACE)

- Subjects: 17,421 middle-class white people with no living problems, no social disadvantage, and high levels of education
- 10 questions about childhood trauma with a "yes" or "no" answer (1 point for "yes").
  - Felitti VJ, Anda RF, Nordeberg D et al: Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: the adverse childhood experiences (ace)study .Am J prev med 1998,14:245-25
  - "Childhood Trauma Illness" by Donna Jackson Nakazawa (Pan Rolling Co., Ltd.)

Have you ever experienced any of the following before the age of 18?

1. Did your parents or other adults in your home often yell at you, insult you, put you down, hurt your self-esteem, or frighten you in ways that threatened to physically hurt you?
2. In your home, did your parents or other adults often push you, grab you, throw things at you, or hit you hard enough to leave bruises or scars?
3. Has an adult, or someone at least five years older than you, ever touched or fondled you in a sexual way? Or has someone actually performed oral, anal, or vaginal intercourse on you?

→ Continued in the next section

Have you ever experienced any of the following before the age of 18?

4. Did no one in your family make you feel loved, important, or special? Or were your family members not attentive, close, or supportive of each other?

5. Were you underfed, forced to wear dirty clothes, and no one cared for you? Or were your parents too drunk or got high to care for you, or refused to take you to the doctor when you needed to be seen?

6. Were your parents separated or divorced?

→ Continued in the next section

Have you ever experienced any of the following before the age of 18?

7. Did your mother or mother-in-law often or frequently push, grab, hit, or throw things to you? Or were you sometimes, often, or frequently kicked, hit, punched, or hit with something hard? Or were you hit repeatedly for at least several minutes, or threatened with a gun or knife?

8. Have you lived with someone who had a problem with drinking, alcohol, or misusing over-the-counter or prescription drugs?

9. Have you ever lived with a family member who was depressed, mentally ill, or had a suicide attempt?

10. Has any member of your family ever been sent to prison?

End

Result

■64 % of participants had experienced adversity by age

■87 % of above had experienced additional adversity.

① People with an ACE score of 4 are twice as likely to be diagnosed with cancer as those with an ACE score of 0.

② For every 1-point increase in the ACE score, the risk of hospitalization for autoimmune diseases in adulthood increases by 20%.

③ An ACE score of 4 is 4.6 times more than those with a score of 0.

④ Those with an ACE score of 6 or higher had a life expectancy 20 years shorter than those with a score of 0.

and so on..

⇒ Despite adopting healthy lifestyle habits, Small-T 's experiences with mental and physical adversity during his formative years led to illness decades later.

The core issue of developmental trauma disorder is attachment trauma

- Adverse childhood experiences → Not only do they experience physical and mental violence such as domestic violence and abuse, but they also experience attachment trauma.
- Attachment trauma: A caregiver's inappropriate response to a child's attachment
- Experiences related to attachment, even minor shocks, can easily become traumatic

b. Attachment Trauma

What is attachment?

■ The human tendency to seek intimacy and connection with others and to derive security from that (Bowlby)

① **Safe haven**: Returning to caregivers for security and comfort in the face of fear or threat

② **Secure base**: The caregiver serves as a safe and reliable "base" from which the child can explore the environment.

③ **Maintaining proximity**: The child's desire to be close to the caregiver

④ **The pain of separation**: the anxiety children feel when their caregivers are absent

⇨ When caregivers provide healthy care for these four elements, children grow up healthy.

Attachment Behavior

■Behaviors such as crying and laughing that infants use to attract the attention of attachment figures and ensure safety

■ Attachment behaviors begin to appear clearly from 6 months of age onwards, and their patterns and meanings change depending on the developmental stage.

① **Outgoing behavior** : Behavior that attracts the attention and attention of attachment figures

② **Approach behavior** : Approaching and attracting attention from attachment figures

③ **Orientation behavior** : Behavior to check where the attachment figure is

Response to Attachment

■ A response that fulfills an infant’s attachment behavior (needs)

① **Behavioral responses**: Communication such as eye contact, physical contact, smiling, and a calm voice, as well as nurturing care such as breastfeeding, putting the baby to sleep, and holding the baby.

② **Verbal responses**: Verbalizing the child's needs (e.g., “You feel lonely," “You are angry," “You are hungry," etc.), and approving and affirming (e.g., "I agree").

③ **Emotional response**: Empathy (feeling the same emotional state as the infant)

④ **Physical response**: Receptivity (activating the ventral vagus complex and staying relaxed)

The impact of a caregiver’s healthy response.

■Children's social and emotional components are important for healthy development

- Establish a sense of "safety" in children's minds and bodies, and use this sense as a safety base, allowing children to explore the environment and expand their own world.
- It affects the formation of a framework for children to perceive things about themselves and others, such as "Am I loved by others?" and "Will others and the outside world respond to my requests?”

⇒ The early frameworks established between children and their caregivers influence relationships throughout life.

Something Formed by a Healthy Response 1

■Sense of basic trust

- Through a sense of personal trust in their parents, they positively view their existence in this world, and have a sense that life has a meaning to live, is worth living, and that the world is worth trusting.
- A sense of security and self-affirmation that it is okay to be alive cultivates a sense of identity that you are your true-self.
- The reassurance that 'I'm okay' brings not only confidence in yourself, but also a sense of trust in those around you that someone will help you when you are in trouble.
- Rather than whether or not someone actually becomes your ally, the feeling of being able to believe that they will be your ally protects you.

Something Formed by a Healthy Response 2

■Internal Working Model

- Representations about attachment objects formed in the child's mind so that even if the caregiver is not in front of them in infancy, they can feel safe by recalling the caregiver.
- It serves as a cognitive framework for the relationship between self and others, which is related to trust in oneself and trust in others through mutual interaction with attachment objects.
- Specific interactions with caregivers in early development become generalized images and subjective beliefs in interpersonal relationships.
- Internalized internal working models can help maintain a consistent interpersonal style and personality in adulthood and beyond.

The Four Styles of Attachment Behavior
(by Strange Situation Procedure)

■The study by Ainsworth et al.

①**Secure type** : They show confusion when separated from their caregiver, but calm down when the caregiver returns.

②**Anxious type (ambivalent type):** They are confused by the separation from their caregivers and have negative feelings when the caregivers return.

③**Avoidant type** : They are not upset by being separated from their caregivers and tend to keep their distance.

④**Disorganized type** : Attachment behavior is mixed with resistance and avoidance, and the child appears spaced out or shows confusion and anxiety in the caregiver's presence.

⇨ Two-thirds of people exhibit a secure attachment style, while the remaining one-third exhibit an insecure attachment style (anxious, avoidant, or disorganized).

Attachment and Dissociation

- Professor Edwards' " Still Face Experiment " (University of Massachusetts)
- https:// www.youtube.com / watch?v =apzXGEbZht0&t=19s

■ ② to ④ indicate problems with attachment, but attachment trauma is particularly influential on Disorganized type .

Still Face Experiment

- Experiment content: Infant's reaction when mother has a blank expression and does not move
- Progression: Makes noises and moves to get the caregiver's attention → Expresses anger to get the caregiver's attention → Becomes confused with anxiety and fear
- Eventually, the infant becomes overwhelmed by the confusion and becomes immobile, showing no interest in the parent, even when the parent resumes responding as if the parent were not present for a time.

⇒ Hopelessness arose in the loss of attachment response, dissociating attachment.

To Understand Traumatization
↓
Diathesis-Stress Model

Mental illness = Stress × Individual vulnerability (stress tolerance)

- Infants, children, and adolescents are biologically vulnerable → Even small shocks can be traumatic

  Examples: Getting lost, surgery, hospitalization, parents being in a bad mood, being compared to others etc.

- Stress can occur when social constraints and pressures due to social status and interests diminish individual power.→ Become traumatized

  Examples: power harassment, sexual harassment in the workplace, economic loss, unemployment etc.

→ Even a small T can be traumatic

2. The Mechanism of Trauma

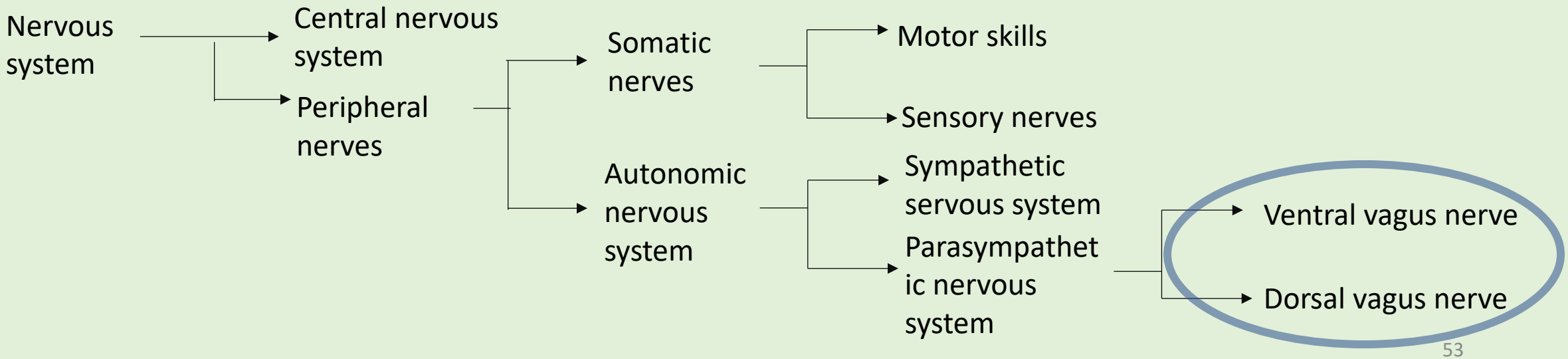
What is happening in the brain and body?

(1) Fight / Flight / Freeze Response

Three Autonomic Nerves

Polyvagal Theory

- Theory of the nervous system published by Dr. Stephen Porges in 1995.
- The human nervous system is composed of the central nervous system and the peripheral nervous system. The peripheral nervous system extends from the central nervous system throughout the body and connects each part of the body.
- The peripheral nervous system consists of the autonomic nervous system and the somatic nervous system
- The autonomic nervous system consists of the sympathetic nervous system and the parasympathetic nervous system, and the parasympathetic nervous system consists of the ventral vagus nerve and the dorsal vagus nerve.



Evolutionary Hypothesis of the Autonomic Nervous System

500 million years ago

Early fish, jawless fish, had only cartilage and a nervous system and only two functions: slowly digesting food and excreting it.

→ Development of the dorsal vagus nerve

400 million years ago

Fish with backbones appeared, allowing them to move quickly, such as by turning, in addition to slow movements.

→Sympathetic nervous activity occurs

300 million years ago

・Amphibians, which can move slowly and quickly, emerged from the sea and were then given birth to reptiles.

→Development of adrenal gland function, which maintains a constant concentration of minerals in the body

80 million years ago

During the age of dinosaurs, mouse-like mammals emerged, and the nerves that controlled the gills were used to fine-tune movements, maintain body temperature, and control facial expressions.

→ Development of the ventral vagus nervous system

・Fetuses also follow an evolutionary path in the womb, like "fish → lizard → human"

Dorsal Vagal Complex

(Northern opossum pretending to be dead)

- Main functions : Energy conservation, metabolic maintenance, immobility
- Target of activity : heart rate, breathing, internal organs
- Deadly Situation : Freezing Protection
- Normal : Rest, digestion, excretion, not using much oxygen
- Chronic predominant symptoms : depression, lethargy, numbness, drowsiness

For example) When an animal enters a frozen or feigned-death immobile state, its senses and awareness become numbed, which reduces pain. In addition, breathing becomes extremely shallow, heart rate can drop into the 40s, and the pupils become very constricted.

→ Mechanism that reduces arousal levels

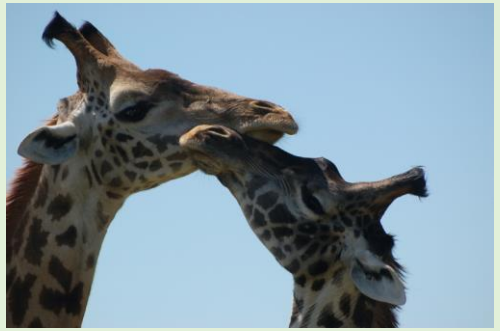
Sympathetic Nervous System

- Main function : Mobilization of the body
- Targets of action : Internal organs, hypothalamus, pituitary gland, adrenal system
- Normal state: Activity, concentration, effort, metabolism
- Lethal situations : Fight or Flight Defense
- Chronic predominant states : anxiety, panic, tension, irritability, hypervigilance, fear

For example) In order to move the body (limbs), breathing becomes shallow and rapid chest breathing to take in a large amount of oxygen, and even at rest, the heart rate rises to over 90 to 100. Tension increases, the pupils dilate, blood vessels constrict, and the hands and feet become cold.

→ Mechanism that increases arousal levels

Ventral Vagal Complex



- Main function : Regulating relationships with others and enabling social interactions
- Target of activity : Communicating emotions to others and oneself, throat, face, middle ear,heart, neck, speech, esophagus, heart, lungs
- Normal state : Relaxed state, pleasant and smooth interpersonal interactions, attachment formation, sense of security and safety, control of the sympathetic nervous system and dorsal vagus nerve
- Lethal situations : Allowing negotiations and bargaining with the perpetrator
- Chronic advantage : Facilitated social interactions, increased support resources, and a sense of safety

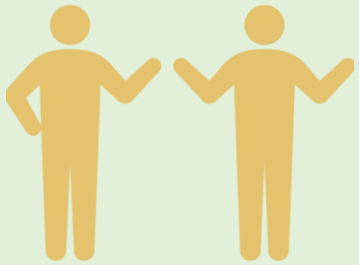
For example) Abdominal breathing is used, resting heart rate increases from 60 to 90 , blood vessels relax and expand, blood circulates throughout the body, the complexion improves, and facial expressions and voice become calmer.

→ Maintains a central level of arousal

Three neurological characteristics in crisis situations

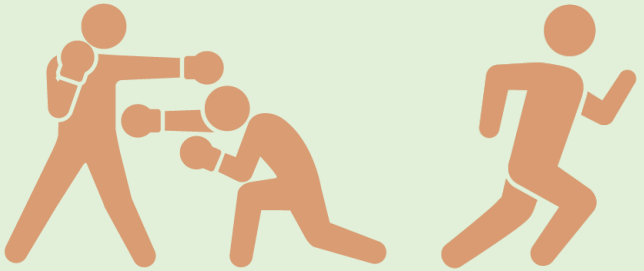
Encountering a threat

Ventral vagus nerve negotiation/deal



→ Maintains a central level of arousal

Sympathetic nervous system fight / flight



→ Raises alertness level

Dorsal vagus nerve
freezing / Pandering / Blocking

→ Works to lower arousal levels

Biphasic response to trauma

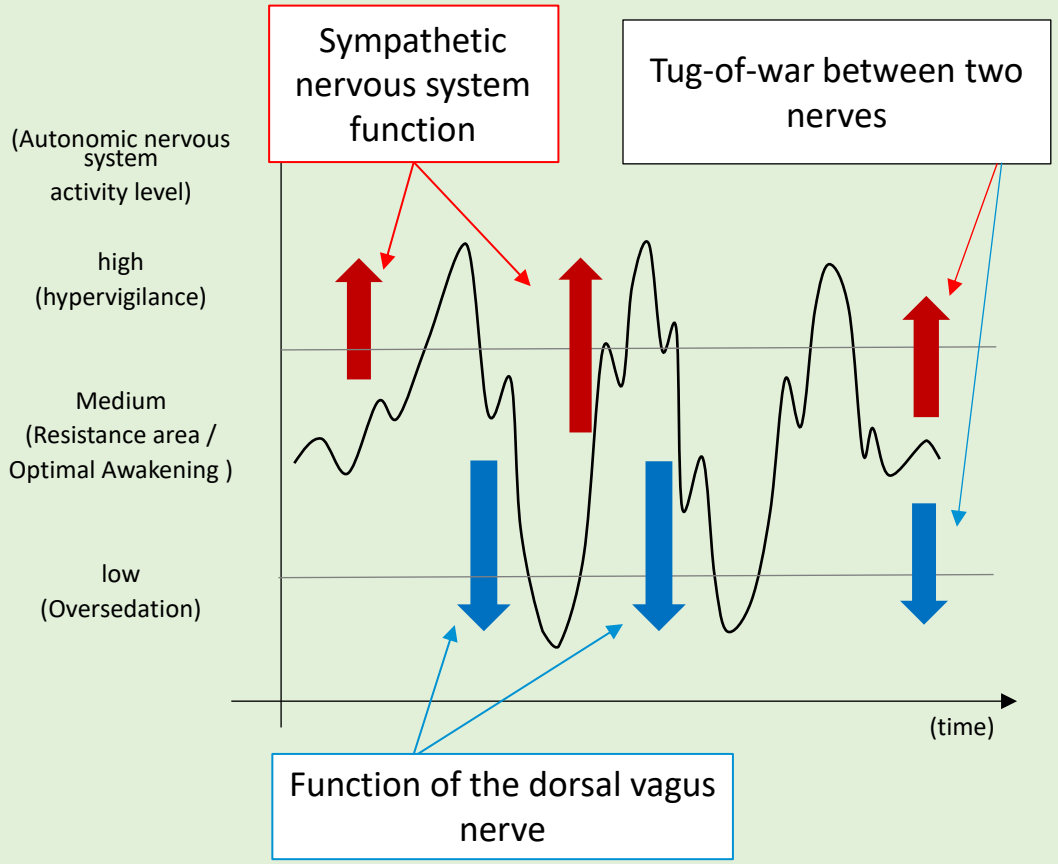
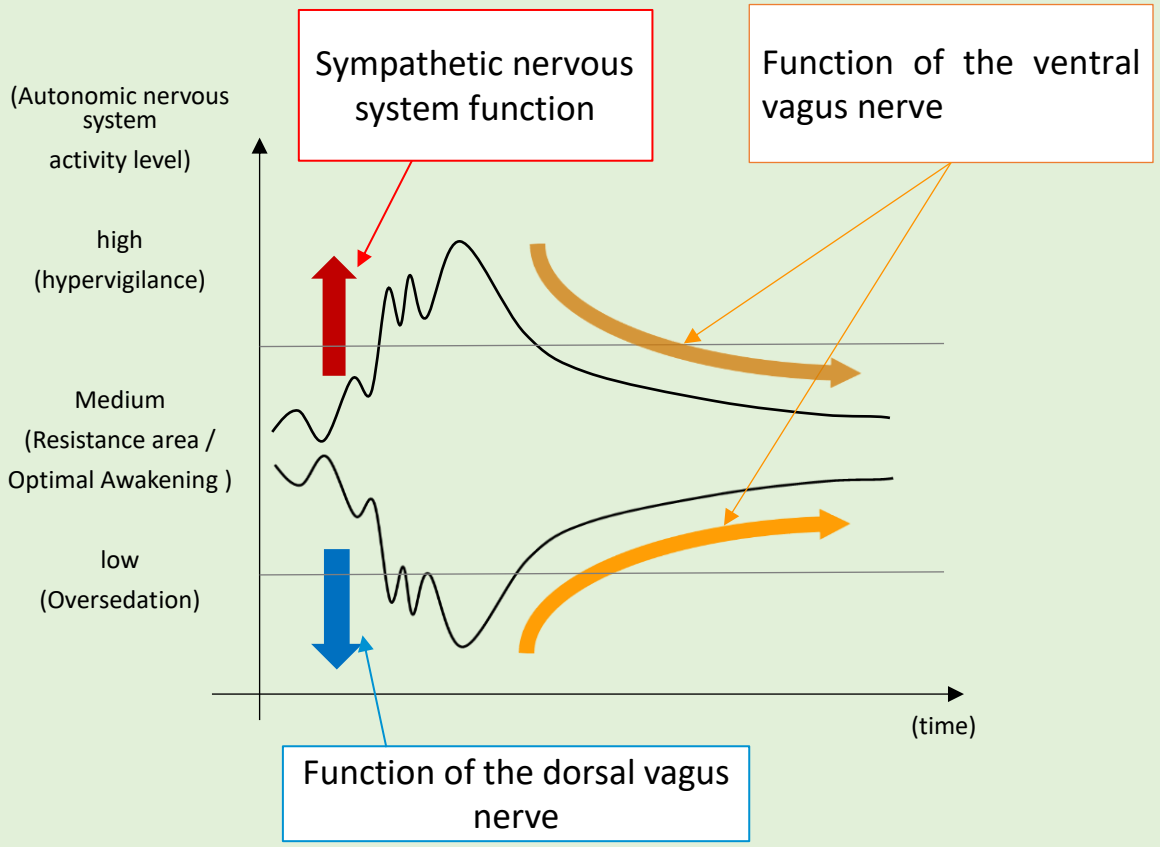


Image of the biphasic response to trauma



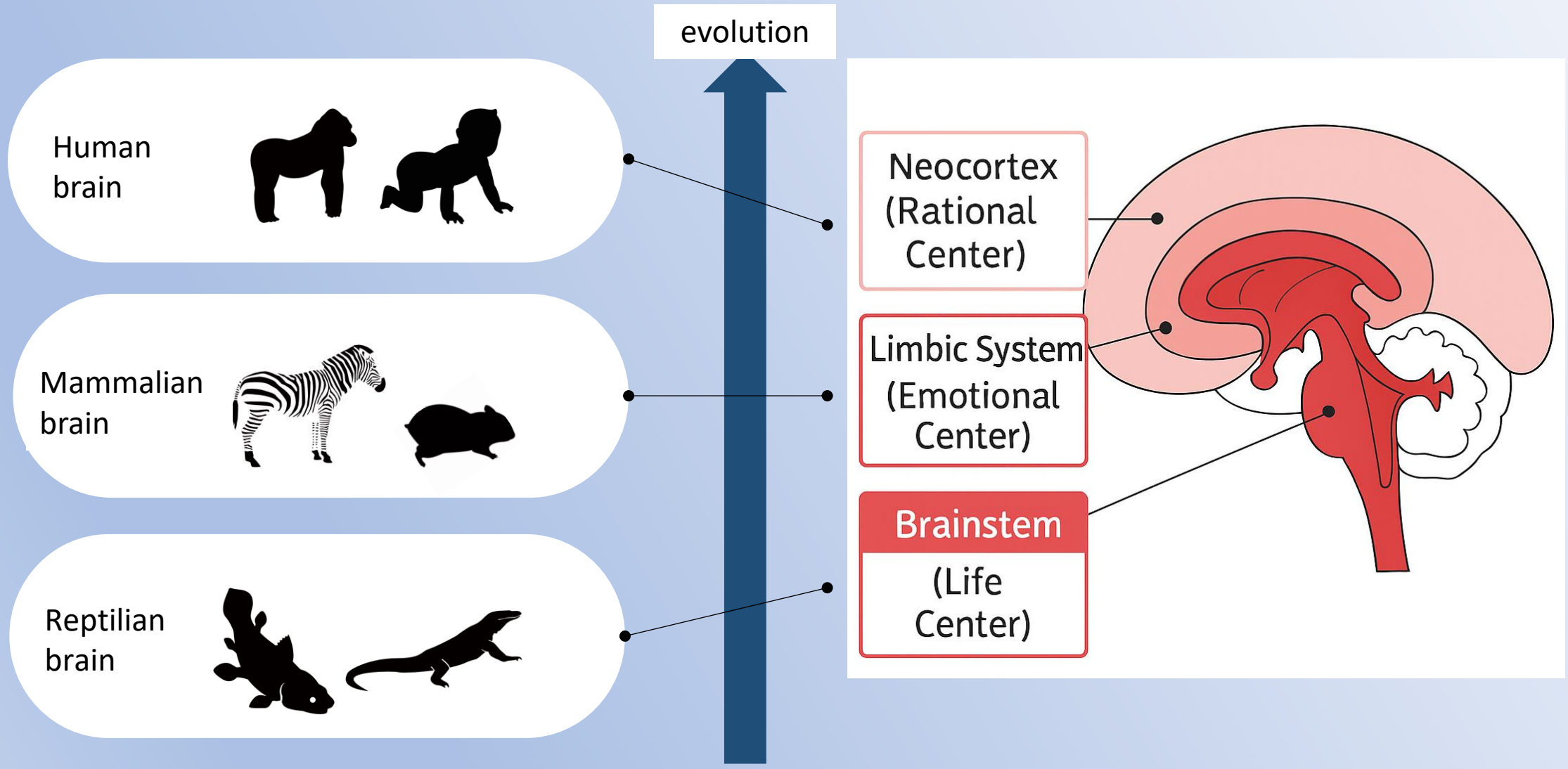
Ventral vagus nerve regulation

⇨ In trauma therapy, the first step is to restore the function of the ventral vagal nerve in regulating the sympathetic nervous system and the dorsal vagal nerve, thereby keeping the level of arousal within the window of tolerance.

(2) Bottom-Up and Top-Down

The Three-layer Structure of the Brain

The hypothesis of the brain's three-layer structure



" The Evolution of the Three Brains" (Paul MacLean , 1990)

Main functions of the three layers

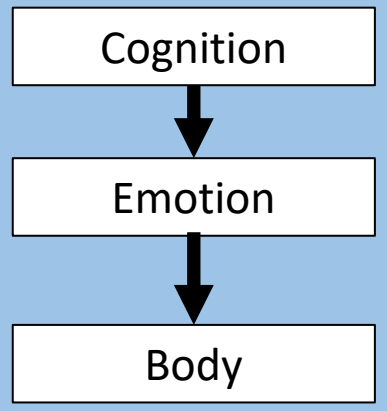
Human brain (cognition)	Neocortex Cerebral old cortex Cerebellum	Learning possibilities, control of mental activity Assessing the situation Postural control and balance function
Mammalian brain (emotions)	Limbic system and basal ganglia	Instinctual emotions and memories necessary for the struggle for survival Regulation of movement, facial expression, and attitude
Reptilian brain (body)	Thalamus Hypothalamus Midbrain Pons Medulla	Sensory integration (central information center) Appetite, temperature regulation, breathing, etc. Fine-tuning of gait, posture control, and overall movement Control of muscle movement Centers for breathing, blood circulation, digestion, etc.

Two directions of information processing in the brain

- Normally, cognition (neocortex) controls emotions (limbic system) and body (brainstem)
- When life is in danger, the body (brainstem) controls cognition (neocortex) and emotions (limbic system)

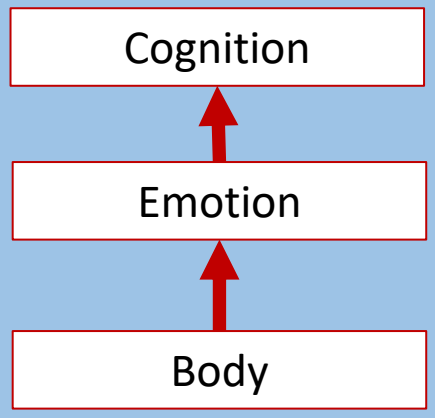
(Normal condition)

Top-down



(State when exposed to danger)

Bottom-up



(Bottom-up example)

- When the body goes into "fighting," it becomes "angry" and "lose control and become enraged."
- When the body goes into "flight," it becomes "anxious" and “keep worrying."
- When the body freezes, the fear makes the mind go blank.

(3) The Transmission of Danger Signals

Amygdala function

The Amygdala

■Based on memory information from sensory organs such as sight and taste, the amygdala instantly determines whether something is "pleasant" or "unpleasant," or "safe" or "dangerous."

↪ Sending out danger signals as the starting point of traumatic reactions

↪ This information is transmitted to the hypothalamus, which causes autonomic nervous responses such as an increased heart rate and gastrointestinal contractions.

↪ When this information is transmitted to the visual cortex, an image of the object flashes in the mind.

■The amygdala judges danger in 0.05 seconds, which is faster than the conscious mind.

① When you turn on the light in the kitchen, you see something black (sensory organs) and are startled (amygdala)

→Start of bottom-up processing

② Specific insects appears in the mind (visual cortex), and the person screams, "Oh no, a cockroach!" (neocortical error) (sympathetic nervous system activation)

③ After that, the black stain on the wall is clearly visible and you feel relieved (neocortex)

→ Correction by top-down processing

(4) Traumatic Memory

Matching of Traumatic Memories between the Amygdala and Hippocampus

Types and locations of Memories

■Declarative Memory : Memory that can be explained in words (Prefrontal Cortex)

- Episodic memory: Personal memories
- Semantic memory : Knowledge about things

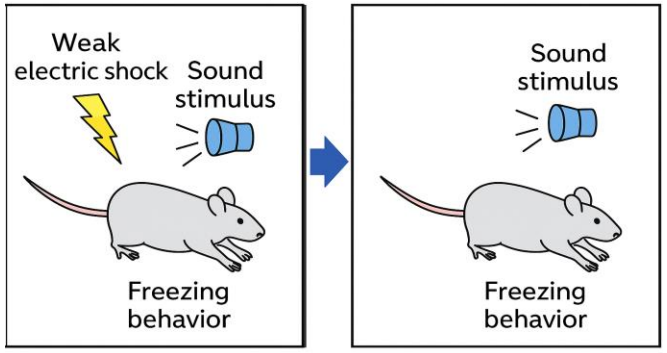
■Non-Declarative Memory : Physical memory

- Procedural Memory : Skills and habits (Hippocampus)
- Respondent Conditioning : Emotions and physical changes that occur in a certain situation (Amygdala)

■ Memories are stored in engram cells in the prefrontal cortex, hippocampus, and amygdala

Memories of the core part of trauma are non-declarative memories, such as procedural memory and response conditioning

↪The process of correcting memory content in the hippocampus and amygdala is important.



Memory Transfer (when time heals)

1. When an individual experiences an electric shock, the danger of the experience is stored in the amygdala (respondent conditioning), and the sensation is stored in the hippocampus (procedural memory).

2. At the same time, engram cells are generated in the cerebral cortex, and memories begin to be stored as episodic memories.

3. As the engram cells in the cerebral cortex mature, the engram cells in the hippocampus undergo dematuration.

- It appears that information has been transferred from the hippocampus to the cerebral cortex.
  - Changes in the form and quality of memory (from procedural memory to episodic memory)
  - If the electric shock experience occurs again, the transfer process is interrupted.

→Next

4. If the situation continues without receiving electric shocks, neurogenesis (the creation of blank engram cells) occurs in the hippocampus, and the memory of the electric shock becomes silent.

5. In the amygdala, engram cells that remember the electric shock become silent, while engram cells that remember safety become active.

⇨ If a safe environment continues after a traumatic experience, the traumatic memory will shift from a vivid state accompanied by re-experiencing to a stable state as a single episode (or so it should be ...)

Takashi Kitamura, Sachie K. Ogawa, Dheeraj S. Roy, Teruhiro Okuyama, Mark D. Morrissey, Lillian M. Smith, Roger L. Redondo & Susumu Tonegawa, "Engrams and Circuits Crucial for Systems Consolidation of a Memory", Science ,

Time for memory transfer

- Everyday memories are transferred in a few hours to 2~3 days after the experience.
- However, the change in the memory-related areas, i.e., the consolidation and stabilization of the state after transfer throughout the brain (hippocampus → prefrontal cortex), takes several weeks to complete in rats and 2 to 3 years in humans.

  ⇨ In humans, memories in the hippocampus are usually active for 2-3 years, and the process of activation and reconsolidation is repeated.

  ⇨ When stable episodic memories in the cerebral cortex are consolidated, memories in the hippocampus tend to become silent.

  ↪ There is a certain effect in verbalizing and organizing memories.

  ↪But for traumatic memories, it's not that simple.

Destabilization of traumatic memories (Time doesn't heal)

- Memory matching between the amygdala and hippocampus is repeated (destabilization)

↪ Warning signs + flashbacks

↪ Memory transfer interrupted

- Takashi Kitamura, Sachie K. Ogawa, Dheeraj S. Roy, Teruhiro Okuyama , Mark D. Morrissey, Lillian M. Smith, Roger L. Redondo & Susumu Tonegawa , "Engrams and Circuits Crucial for Systems Consolidation of a Memory", *Science*

- If the hippocampus transmits the memory of the traumatic experience to the amygdala, the amygdala should not send out a danger signal.

- However, in reality, memories indicating the risk of trauma are transmitted from the hippocampus to the amygdala, causing the amygdala to continue sending out danger signals.

Disruption of traumatic memories and interruption of defensive responses

■Traumatic memories are divided when the freezing response occurs.

■The connection between the first half, which is most active just before freezing, and the second half, which becomes dissociated after the freezing reaction occurs, is lost.

- The amygdala transmits the most activated memory of the first half, and not the second half of the memory, which indicates the end.
- In addition, the fight/flight defensive reaction that was supposed to be carried out is stored in the memory of the first half with the interruption.

⇨ As a result, the amygdala determines that there is still danger and continues to send out danger signals.

Characteristics of hippocampal engram cells

■ Engram cells in the hippocampus that hold traumatic memories can be overwritten with memories of safety.

→ When 1)the first and second halves of fragmented memories are integrated and 2)the interrupted defensive response is completed, overwriting this information onto hippocampal engram cells transmits the message to the amygdala that the danger has passed.

■Incidentally, engram cells in the amygdala cannot overwrite memory content in the same cell.

- Roger L Redondo, Joshua Kim, Autumn L Arons , Steve Ramirez, Xu Liu, Susumu Tonegawa . "Bidirectional reversal of the valence associated with the hippocampal memory engram." *Nature* , 2014

(5) Bias in Input Information

Defensive Orienting Response Leading to Attention Fixation

Attention

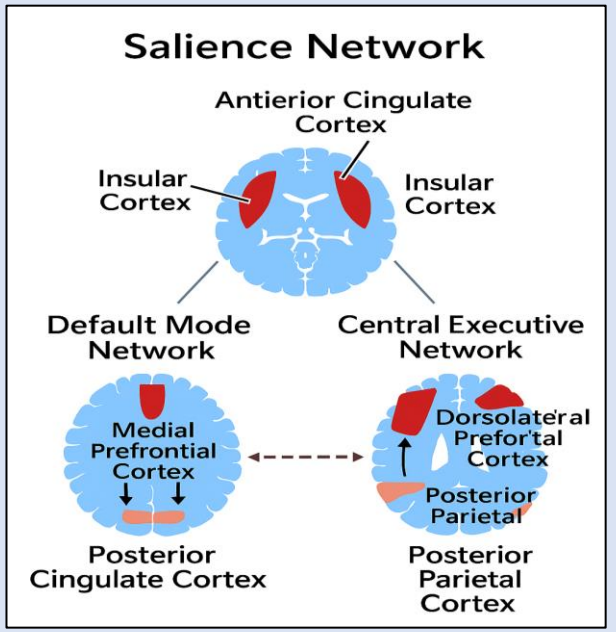
- Attention is the ability to select certain necessary stimuli and information from various external and internal stimuli and information in the current environment and information, and to give continuity, consistency, and flexibility to speech and behavior.
- In short, it is a brain function process that focuses on the necessary target and processes and outputs information.
- Attention is not a function of a single brain region, but rather a network of multiple regions.

< Major networks >

① Central Executive Network (Dorsal Attention, Sensorimotor, Frontal, and Parietal Network)

② Salience Network (limbic and ventral attention network)

③ Default Mode Network



Functions of attentional networks

<Central Execution System>

- Involved in purposeful (goal-directed) executive functions
- Switch the object to be noted or change the allocation of the attention resource (1)

⇨ Conscious attention

< Default Mode>

- Involvement in intrinsic attention
- They are active when referring to the self, such as recalling memories, introspection, and predicting the future.
- Organize information in your brain

⇨ Attention for self-insight

< Saliens>

- Unconsciously compare sudden stimuli or outstanding objects with those around them

⇨ Unconscious attention

(1) Attention resources

Attentional capacity. The capacity of attention is determined by each person, and the more objects one pays attention to, the less attention can be allocated to each object, and there is a limit (attentional capacity model)

Attention that maintains trauma

- The salience network becomes fixed, making it easier for the individual to unconsciously direct their attention to trauma-related stimuli (defensive orienting response).
- The central executive function network consciously searches for trauma-evoking stimuli.

  ↪ Attention fixation on trauma-related information negatively biases sensory input, preventing the amygdala from correcting its response.

- Furthermore, trauma cannot be processed unless one is in the default mode (introspective state).

⇨ Creating the right state of attention for trauma processing is important

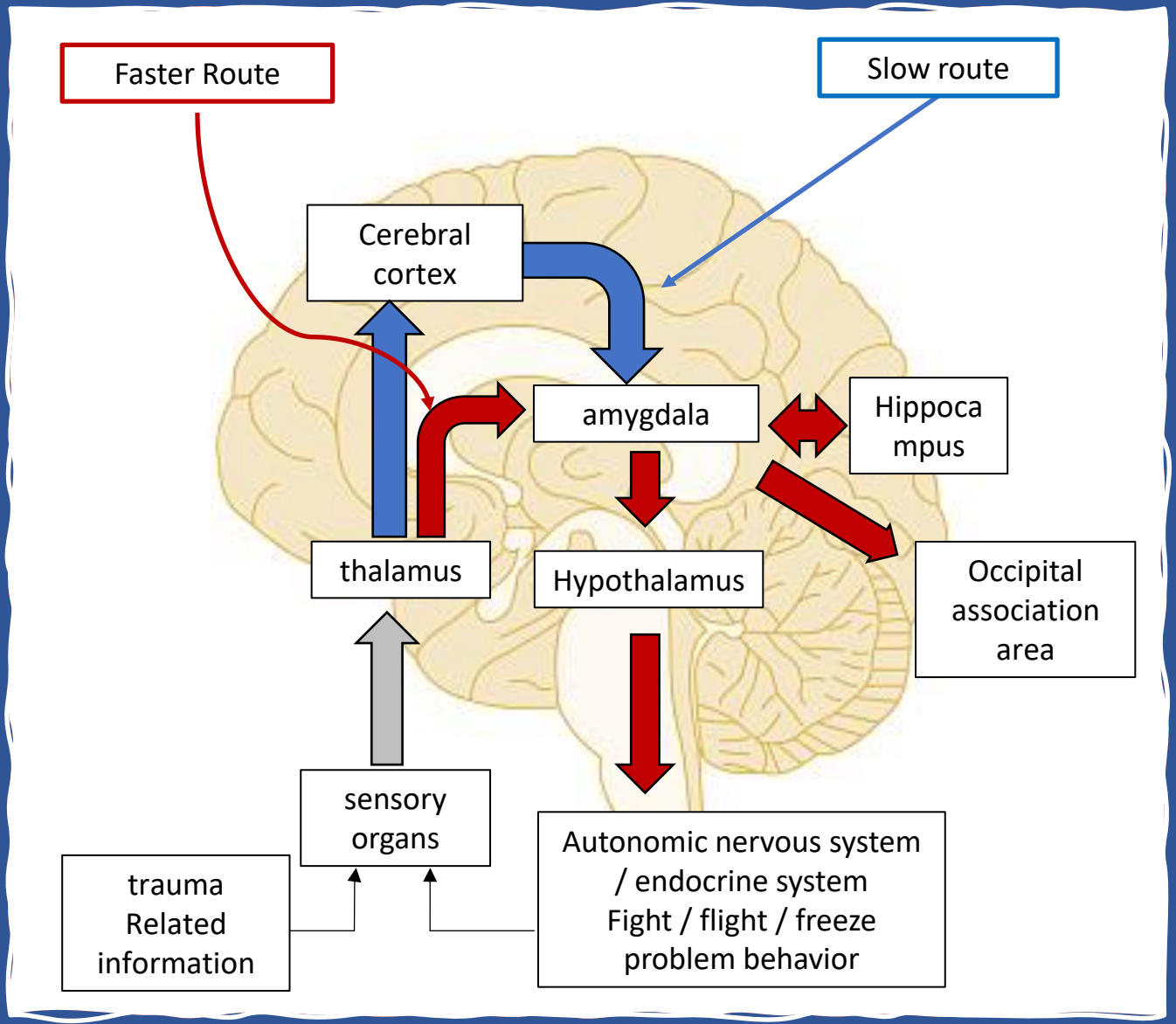
- It will be in default mode
- Pay attention to safety information

(6) Closed Neural Circuits Surrounding the Amygdala

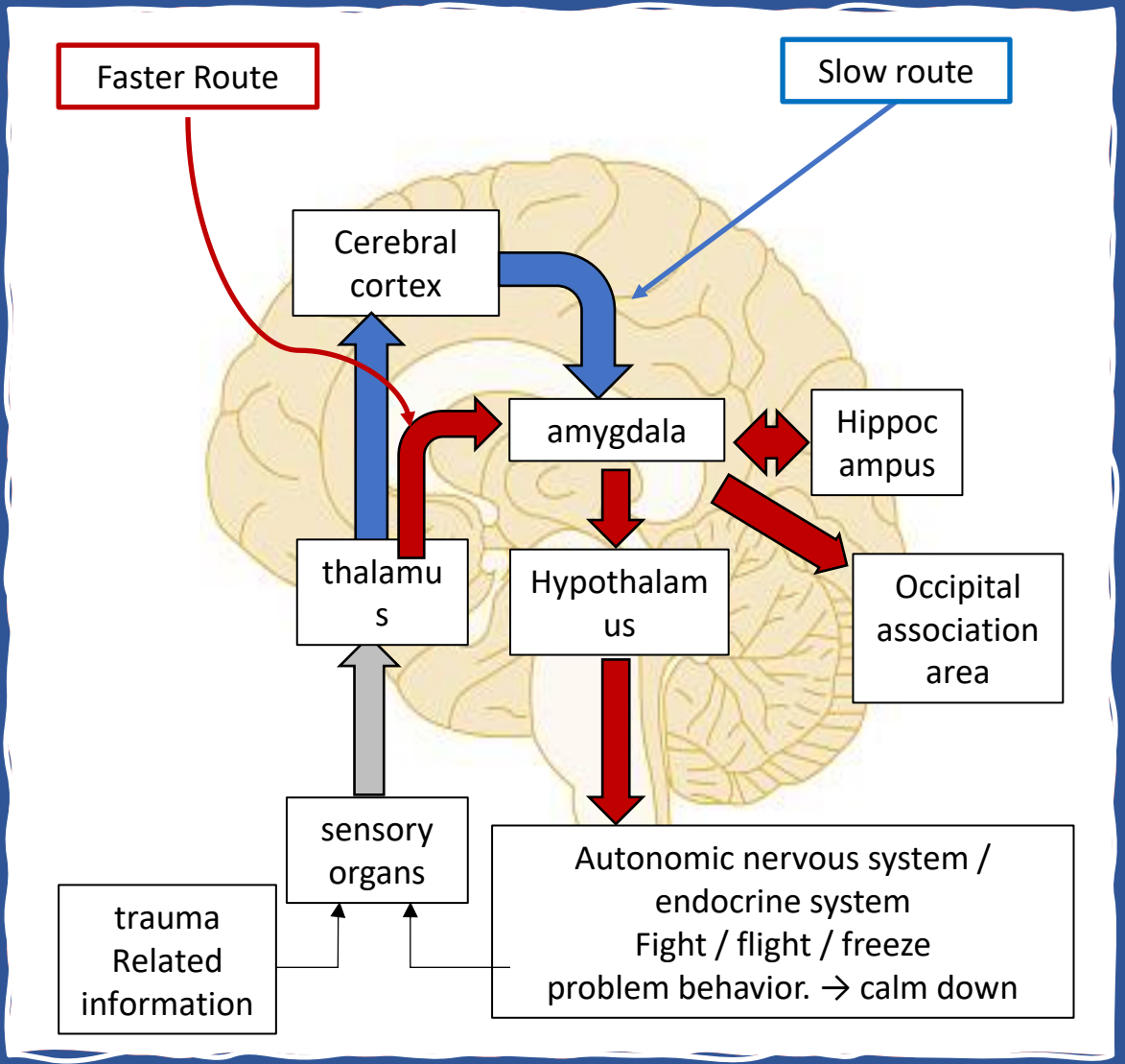
Mechanisms of Trauma

Closed Neural Circuits Surrounding the Amygdala

- Trauma-related information is input to the sensory organs and compiled in the thalamus
- This information reaches the amygdala, where it is compared with traumatic memories in the hippocampus, causing the amygdala to send out a danger signal.
- Images of danger arise
- The activation of the autonomic nervous system and problem behaviors that occur in the body are again input from the sensory organs.
- Bottom-up processing in the cerebral cortex creates trauma-biased information that is then transmitted to the amygdala



Inputting safety information into the amygdala



- Selective attention to safety information allows the amygdala to learn through experience that something is safe.
- In the hippocampus, 1) the integration of fragmented memories, 2) the completion of interrupted defensive reactions, 3) the practice of active defensive reactions, 4) the completion of interrupted attachment behaviors, and 5) the simulated experience of healthy responses to attachment behaviors overwrites the traumatic memory.
- Promoting self-understanding in the cerebral cortex, correcting cognitive distortions, and reducing the influence of bottom-up processing
- By making the ventral vagus nerve dominant, the level of arousal is brought within the tolerance zone, stabilizing the body.

(7) Structural Dissociation of the Personality

Traumatic Dissociation
and Infantile Dissociation

What is dissociation?

- The disconnection of sensations, actions, thoughts, emotions, etc. from the subject of consciousness (e.g., the sensation of a blown fuse)
- The conscious subject has no control over the separated parts
- When a separate part contains a lot of information, it can act like a single personality.

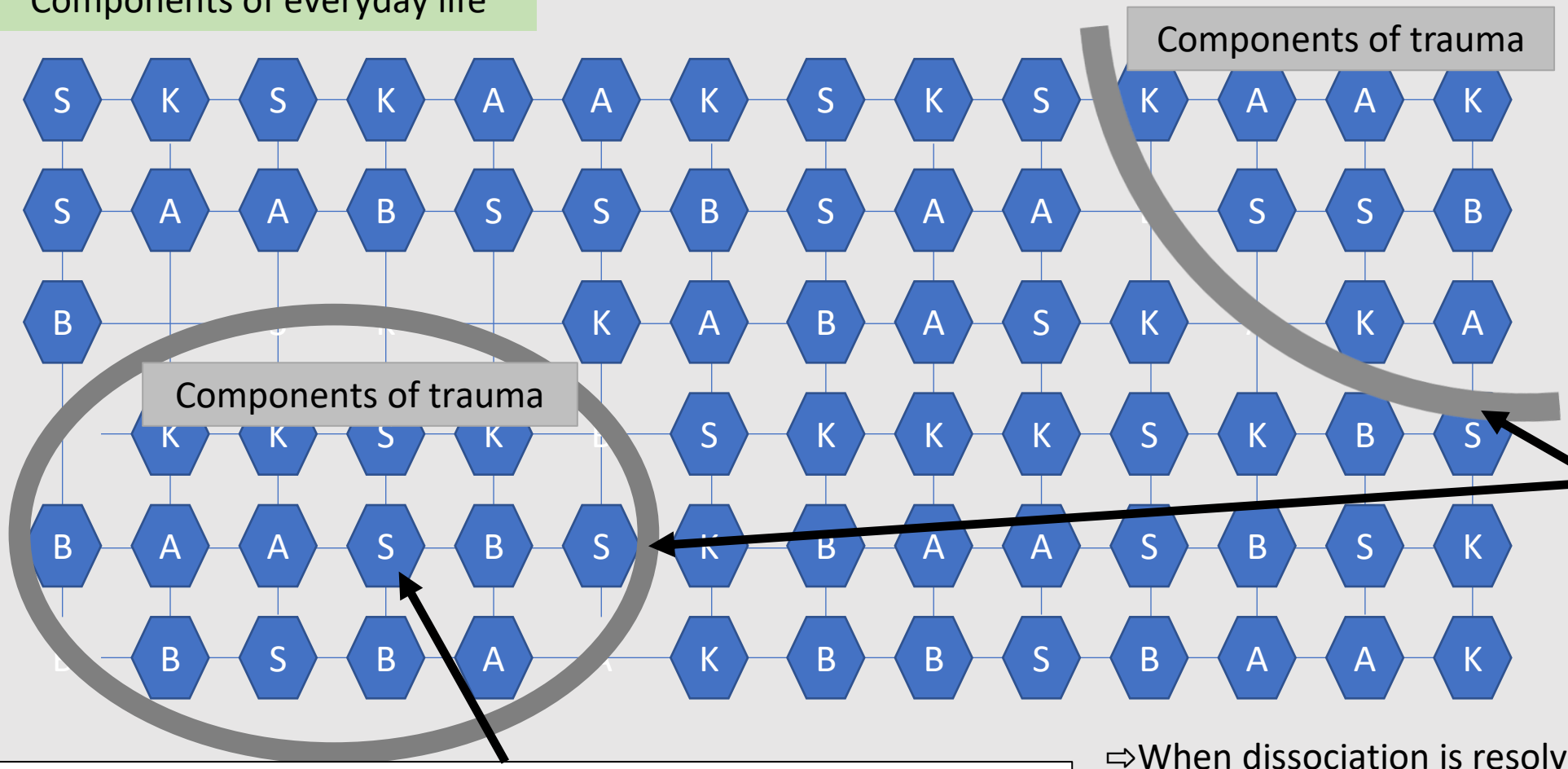
*Doraemon's gadget: 'Bad Thing Fuse'
Just clip this fuse. When something unpleasant happens, snap it—and you'll instantly black out and feel nothing.

Fujiko F. Fujio (1985). Doraemon 33, Shogakukan .

Components of the experience

B = Behavior A = Emotion S = Sensation K = Memory and Cognition

Components of everyday life



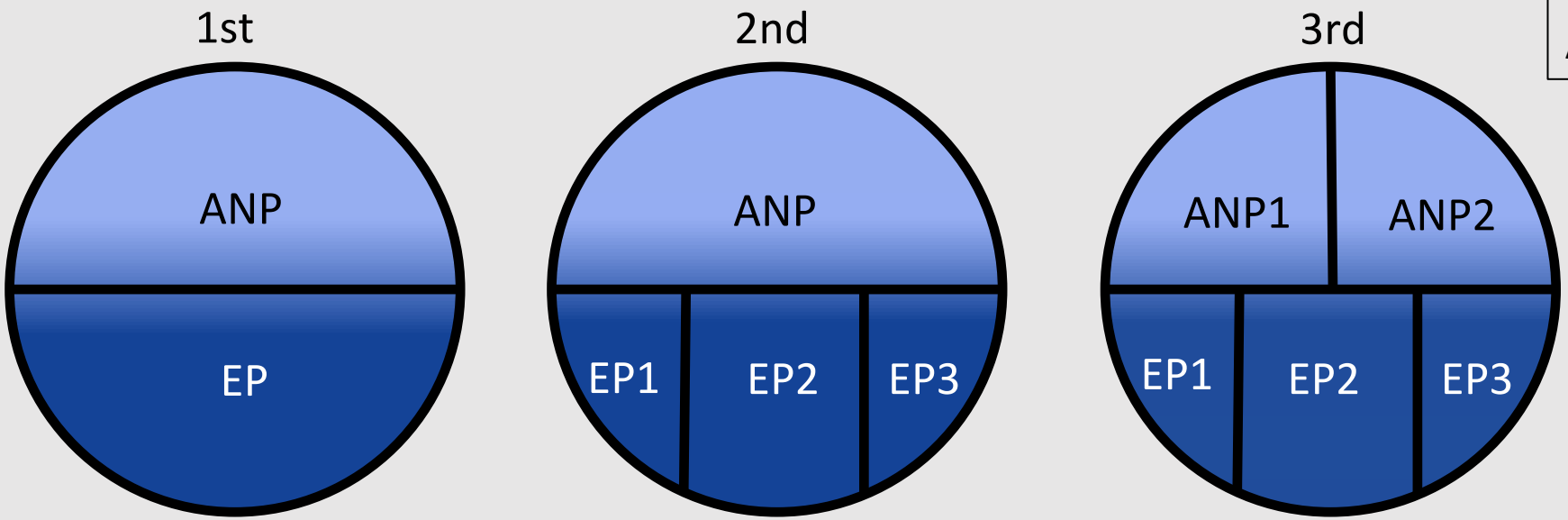
A state in which dissociation, among many components, has severed connections with other components

As the amount of components gathered increases and the content becomes more refined, it crystallizes and becomes a personality → Next section

⇨When dissociation is resolved, the trauma components are connected to other components and neutralized.
(Red ink in a cup, red ink in the sea analogy)

Structural Dissociation of the Personality

- Second ANP : Front parts
- Third ANP : Alter personality



ANP : Apparently Normal [Part of the] Personality A personality (part) that appears normal	Activity systems that focus on living the daily life of a survivor (e.g., exploration, caregiving, attachment)
EP : Emotional [Part of the] Personality Emotional personality (part)	The activation systems that are activated during trauma (hyperarousal, fight or flight, sexual activity, defense, etc.)

Van der Hart, Nijenhuis & Steel (2006)

Parts Type

- Ego state therapy: Trauma parts, symptom-related parts , incorporated images (perpetrator parts), resource parts etc.
- Internal family therapy: The manager parts, the firefighter parts , and the outcast parts
  - The administrator is the part that takes precautions to prevent the outcast from going out of control, the firefighter is the part that has the role of stopping the outcast just before it goes out of control, and the outcast part is the part that has been traumatized and has been expelled.
  - For example, the outcast is the one who feels abandoned, the firefighter cuts his wrists to avoid feeling that way, and the manager part tries to adjust himself to live a normal life so that his social life is not disrupted by this.

⇨Parts and alter personalities form multilayered and functional structures.

⇨There are also structures where personality changes occur repeatedly and the dominant personality is not constant.

Mode Types

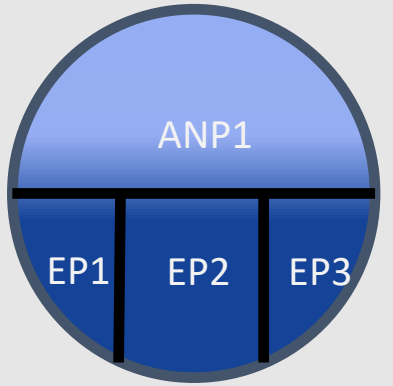
- Mode: In primary and secondary structural dissociation, when the force separating ANP and EP is weak, ANP enters a state referred to as a ‘mode’ under the influence of EP.
- Schema Therapy Classification
  - **Maladaptive schemas (≒ Core Beliefs) :** Abandonment schema, mistrust/abuse schema, emotional deprivation schema, defect/shame schema, social isolation schema, failure schema, approval-seeking schema, strict standards schema
  - **Modes:** Vulnerable Child Mode, Angry Child Mode, Impulsive/Inautomatic Child Mode
  - **Maladaptive coping modes:** blocking-defense mode, overcompensation mode, and submissive-obedience mode
  - **Denies the child mode and drives the coping mode :** non-functional parental mode (punitive parental mode, demanding parental mode)

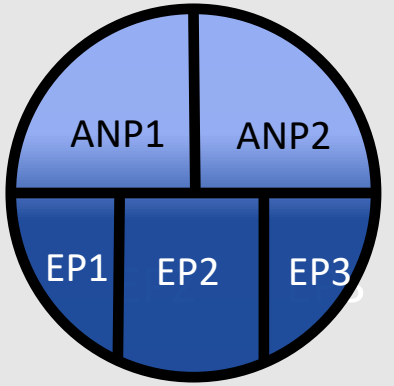
The role of dissociation

- Serves as a kind of dam that holds back traumatic emotions, bodily sensations, and memories so that daily life does not collapse.
- If the dissociation, which is a dam, is resolved at once...
  - The water stored in the dam is released downstream (Re-experience)
  - The released water level exceeds the levee and floods (re-traumatization)
  - Flooding can disrupt daily life and even claim lives (re-traumatization).
  - A strong dam is built around the affected area (strengthening and complicating the separation**)**
- Stored in the dam is safely released into the sea without flooding → <u>deactivation and dereaction</u>
  - Flow little by little → Titration
  - Building higher levels, draining water through multiple routes, and installing buffer materials to reduce the force of the water → <u>stabilization</u>

Approaching parts and alternate personalities

- Downregulation by the ventral vagus nerve to ease dissociation barriers
  - Therapist's dialogue using the ventral vagus nerve
  - Empathize with the roles, placement, and relationships of parts and alternate personalities
  - Facilitating internal communication
- When dissociative barriers weaken, trapped traumatic reactions surface, so it is important to hone your skills in down-regulating the ventral vagus nerve.
  - Improved grounding, titration and self-regulation
  - Creating cooperation between parts and alter personalities and regulating internal relationships to process trauma





⇨This preparation makes it possible to process trauma

However, there is no established psychotherapy for alternate personalities.

Infantile Dissociation

■**Putnam's discrete behavioral states**

- Infants are in a state where their emotions and bodies are not yet integrated, and they spend their time switching between different behavioral states.
- Emotions and desires that are not properly regulated by caregivers will grow up unintegrated (≒ dissociation) → Become the seed of another personality

■**Panksepp's three levels of emotional processing in the brain**

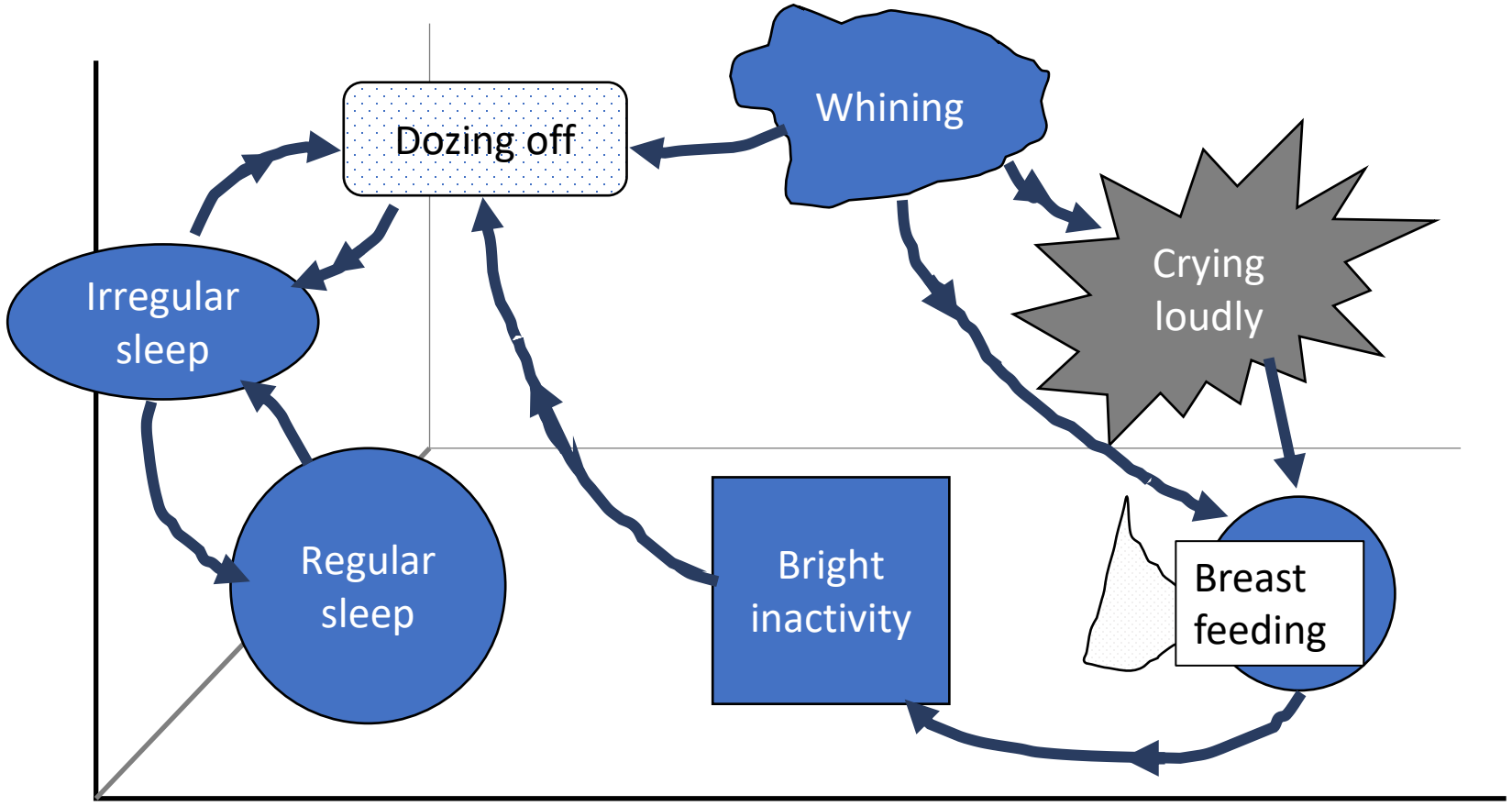
Level 1: Innate subcortical circuits (7 circuits)

→ Emotional circuits that are not horizontally integrated are left behind on the pillars

Level 2: Object relations learned through attachment experiences, shame, guilt, pride, trust, empathy, intersubjectivity, etc.

Level 3: Mindfulness, labeling emotions, expressing skills, mentalization, etc.

Putnam's discrete behavioral states



State-space architecture of infants, 1-month-old infants

Putnam (1997) Dissociation in children and adolescents: A development perspective.

- Infants transition (switch) between each behavioral state.
- Behavioral states become more complex as they grow
- Gradually seeks to take control of one's own state
- However, the self-state that cannot be controlled is left unregulated (dissociation)
  ↪ Possibility of developing into a different person

The neural circuitry encoding

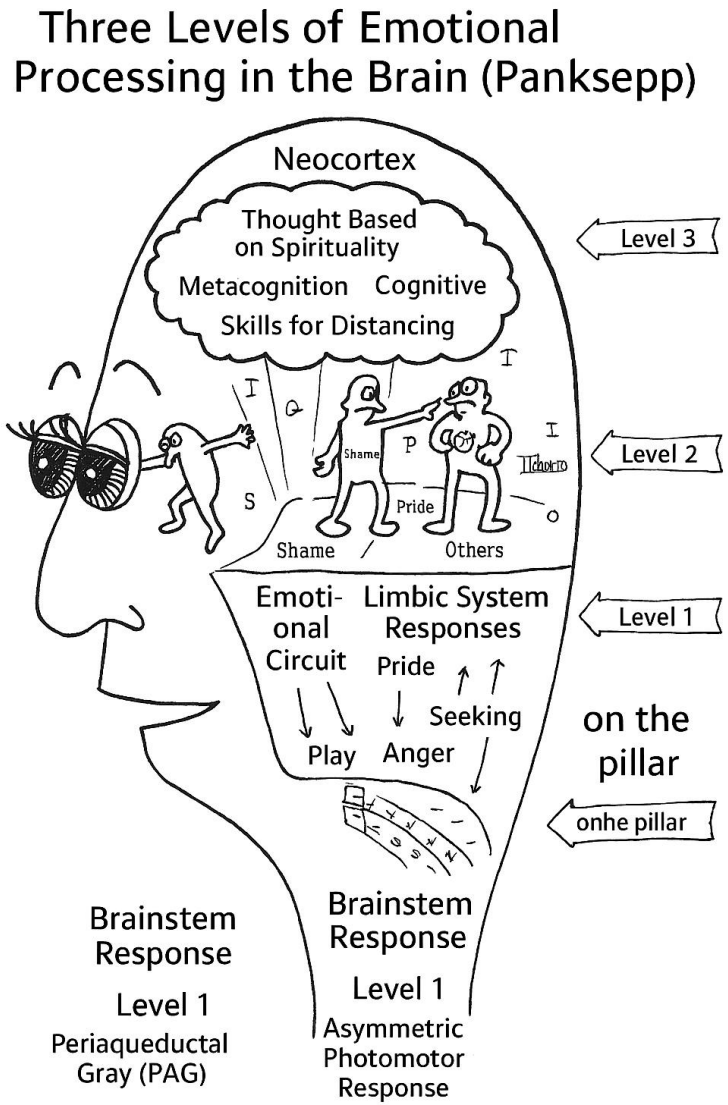
< First level circuit >

- Search / Anger / Fear / Play / Desire / Care / Panic
- When trauma occurs during the attachment phase, these emotional states are not integrated horizontally and remain isolated like pillars.
- Isolated on the pillar → Sudden switch, switching with amnesia occurs (Dissociative Identity Disorder)

< Second level circuit >

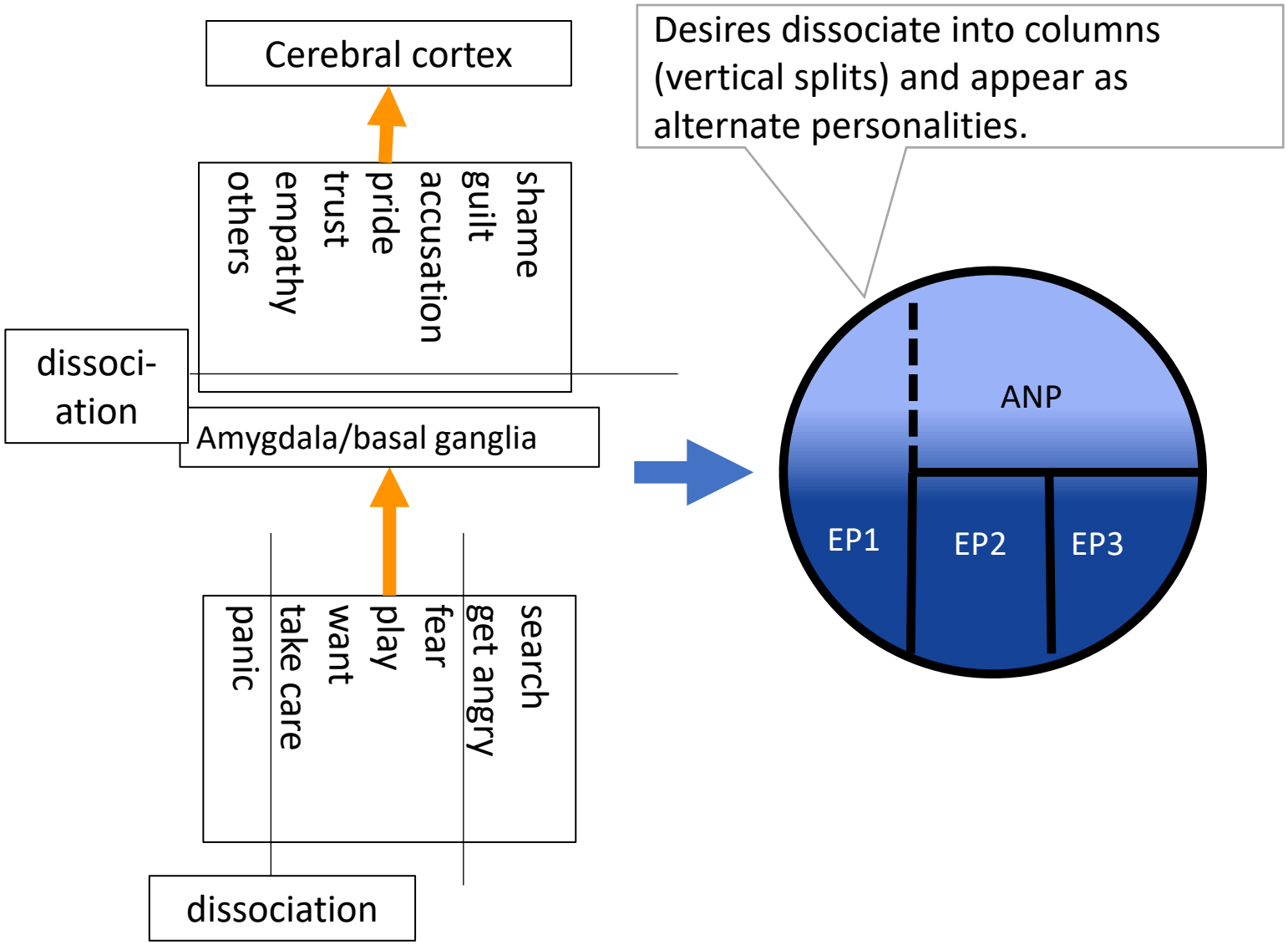
- Shame acts as a circuit breaker → Put a lid on emotions

(Punksepp, 1982)



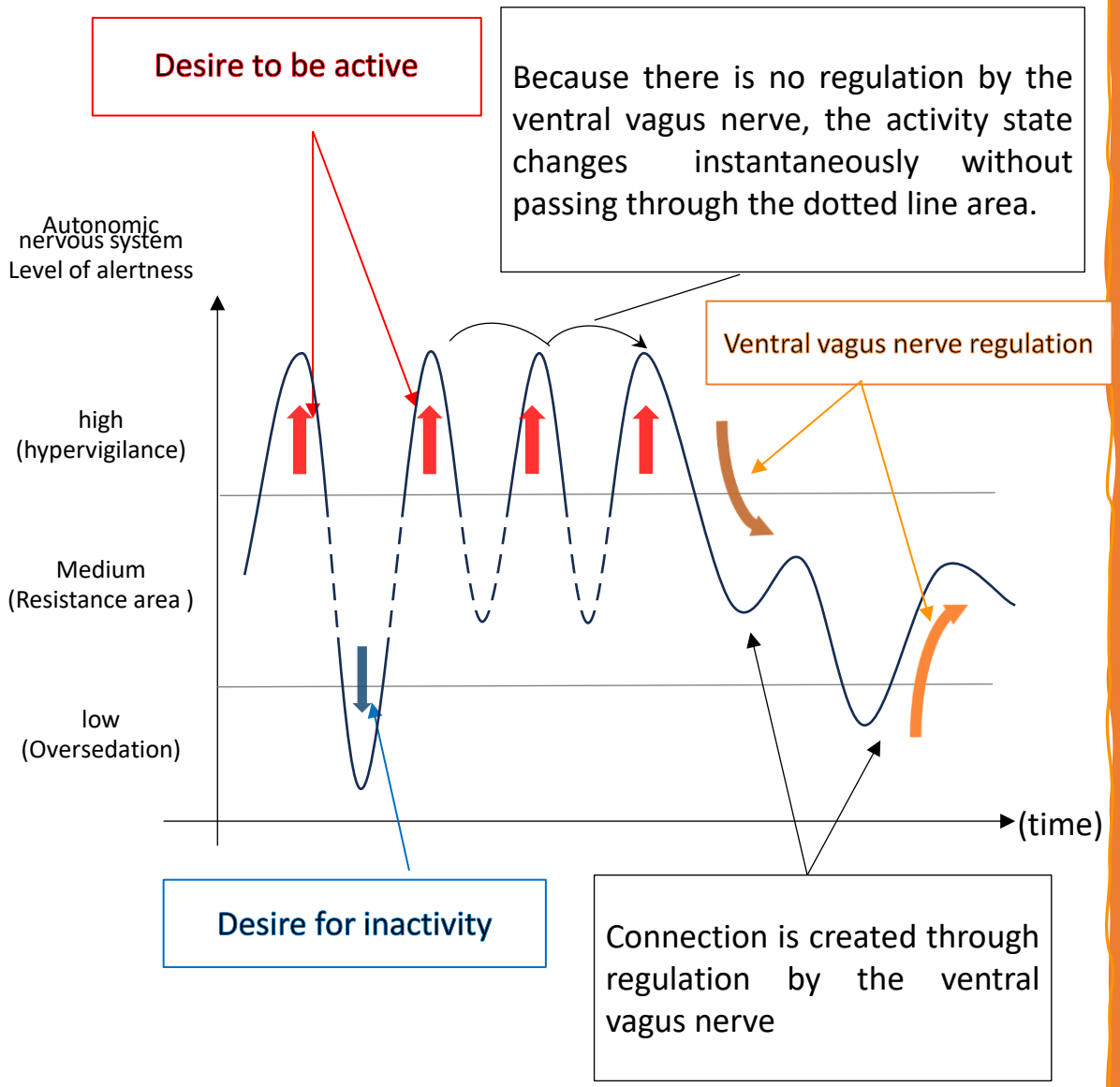
Sandra Paulsen, "When There Are No Words" Spectrum Publishing

Dissociation in infancy



- Innate emotional circuits are in disarray
- If they are not properly regulated and included in the emotional cohesion of their caregivers, they become isolated (dissociated).
- EP appears directly at the forefront of the personality, similar to an alternate personality.
- Shame and guilt can shut down that innate emotional circuitry.

Autonomic nervous system and appetite



- Due to the underdeveloped functioning of the ventral vagal system in infants, they cannot effectively down-regulate states of need.
- Each desire state is not connected within the tolerance zone (dotted line), and when moving to another desire, the desire state switches, like changing
  - Dissociative Identity Disorder also involves switching from one alternate personality to another.
- By being down-regulated via the ventral vagal system, diverse needs are integrated within the window of tolerance, and this integration constitutes the basis of personality.
  - Desires that cannot fit into a personality unit become the seeds of alternate personalities.

To regulate emotional states during infancy

- Both Putnam and Panksepp believe that in order for infants to smoothly transition between states and reach a holistically adjusted and integrated state, downward regulation is necessary to calm the desire state.(sympathetic nervous activation → ventral vagus nerve dominance).
  - ↪ The caregiver physically and psychologically holds the baby.
- At the same time, caregivers need to understand the infant's needs and take on the psychological task of caring for the infant's condition with empathy.

⇨ In summary, the process involves cognitively understanding the infant’s state, emotionally empathizing with it, and physically accepting it. (internal working model<Saucer of the heart>)

What is necessary to resolve dissociation and process trauma

Picaso "Mother and Child"

- Dissociation is caused by the dorsal vagus nerve, while traumatic reactions are caused by the activation of the Parasympathetic nervous system.
  - Regulating via the ventral vagus nerve

  → Focus on safety here and now

  → Experience safety and security in empathetic connections

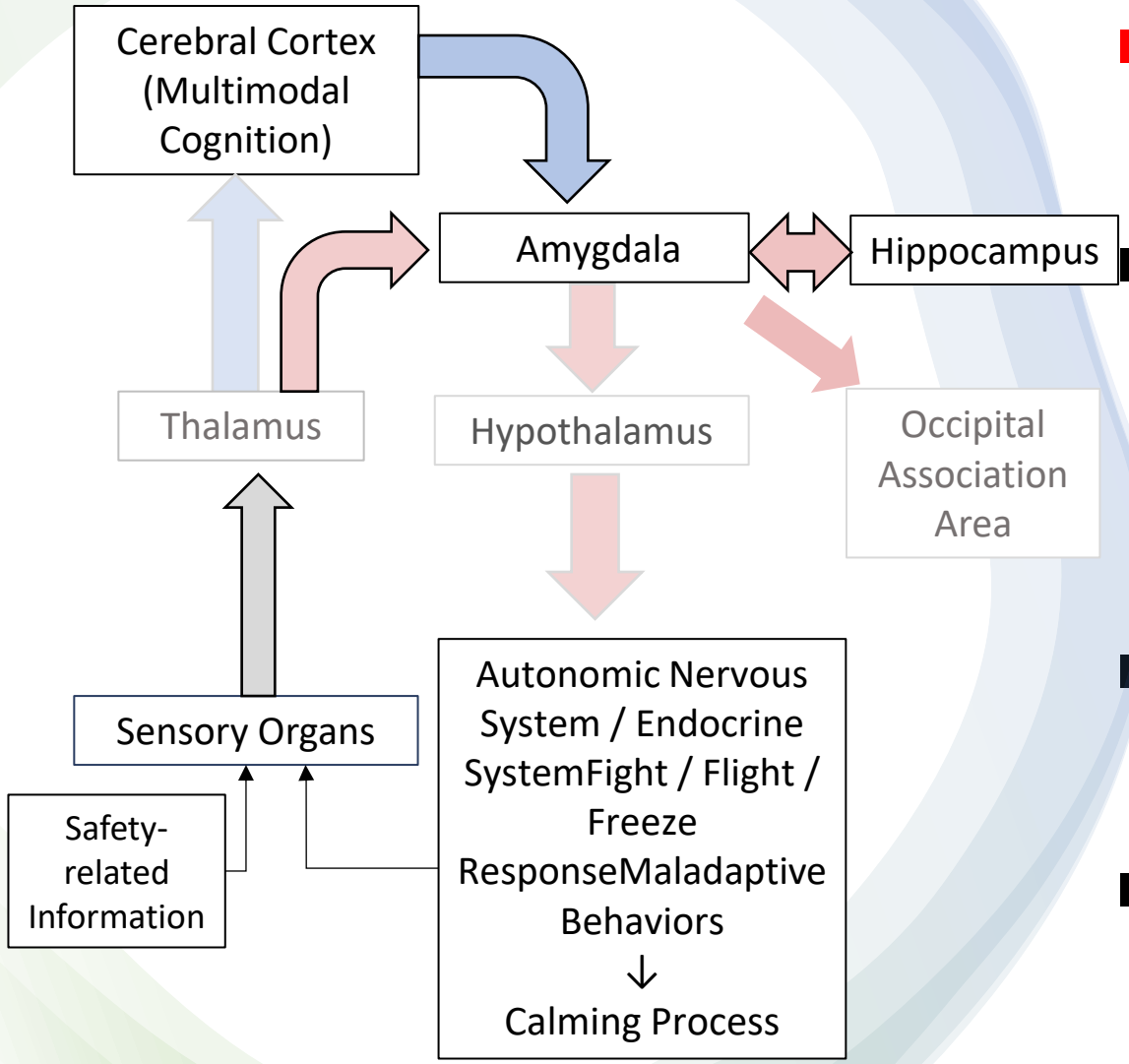
  →The integration of parts and alternate personalities progresses naturally.

⇨ To form a healthy internal working model in the mind—like a caregiver soothing a crying baby with gentle reassurance.

3.Trauma Therapy and Self-Management

An Approach Based on the Mechanisms of Trauma

Key Points for Processing Trauma (Revisited)



- Focus selectively on information related to safety, allowing the amygdala to experience and learn the sense of safety anew.
- In the hippocampus: Overwrite traumatic memories of ①Integrate fragmented memories②Complete interrupted defensive responses③Practice active defensive responses④Resolve interrupted attachment behaviors⑤simulated experiences of healthy responses to attachment
- In the cerebral cortex: Promote self-understanding, correct cognitive distortions, and reduce the influence of bottom-up processing.
- Activate the ventral vagal system to keep the level of arousal within the window of tolerance and stabilize the body.

To Facilitate Smooth Trauma Processing

■Stabilization Before Processing Trauma Is Essential

- Stabilization of the Autonomic Nervous System (Environmental Adjustment, Relaxation, Grounding, Resources, etc.)
- Adjustment of Dissociative Symptoms (Care for Parts and Alter Personalities)
- Resolving Disturbances in Self-Organization (Affect Dysregulation, Negative Self-Concept, Interpersonal Difficulties)
- Reduce Defensive Orienting Responses and Shift Attention to the Here and Now

→If the ventral vagal system is not dominant and the sense of “safety in the here and now” cannot be experienced, it becomes difficult to manage the intense activation of traumatic memories.

→The more complex the trauma, the more time and effort must be devoted to stabilization.

Self-Management from the Perspective of Trauma Mechanisms

■Regulation of the Autonomic Nervous System

- Activate the Ventral Vagal System
- Sense of the Here and Now (External Attention)
- Resources
- Mindfulness
- Self-Dialogue (Self-Affirmation, Validation, Empathy, Acceptance)
- Create a Low-Stress Living Environment and Interpersonal Relationships
- Organize Thoughts

→By maintaining awareness of the bodily sensations that arise during these processes and staying with them, the activity of the ventral vagal system is further enhanced.

■In Response to Stressful Events

- Complete the Fight-or-Flight Response in Imagery
- Alternate Between Stress Response (Sympathetic Nervous System) and Resources (Ventral Vagal System)

→When activation is too intense to manage on your own, seek professional help.

Environmental Adjustment

■ Change aspects such as living environment, income, job content, interpersonal relationships, medical care, leave and return to work, employment support, and public assistance to options that are better for you.

■ Reduce Stress by Resolving Environmental Problems

- Change aspects such as living environment, income, job content, interpersonal relationships, medical care, leave and return to work, employment support, and public assistance to options that are better for you.
- The very act of changing your environment is an important factor in empowering yourself.

Resources

- Sunlight exposure, walking, getting off one station early on your commute, stretching, running, cycling, dancing, swimming, strength training, massage, sea bathing, mountain climbing
- Yoga, seated meditation, forest bathing, mindfulness, sensing the present moment
- Japanese cuisine, fermented foods, fruits, cocoa, herbal tea, green tea, coffee, soup
- Aromatherapy, music, hot springs, sauna, moderate alcohol
- Movies, dramas, novels, manga, live concerts, theater, art museums, travel, cooking, quiet cafés, studying something you enjoy, gardening, pets, heartwarming videos
- Journaling, self-praise, recalling happy memories, recording achievementsMeeting good people, hugging, using positive words
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- Religion (shrines, temples, churches), spirituality (power spots) and so on

Self-Dialogue

- Mammals possess a neural system that activates the ventral vagal complex to connect with others and ensure safety.

→ Even without an actual other person, engaging in empathic dialogue with yourself (self-compassion) can activate the ventral vagal system.

- This also helps repair the internal working model.
- Connection with the self-object promotes self-stability (Heinz Kohut).In some cases, parts work can be applied.
- In certain situations, it is possible to engage in parts work.

Activating the ventral vagus nerve

■Maintaining the ventral vagus nerve dominance

- Being grounded
- The body feels light, calm, and warm (able to alleviate stressful states)
- Slow Movements (including breathing, thinking speed, and speaking pace)
- Gentle facial expressions, a reassuring voice, and warm gaze
- Sensing the emotional state of the other person (mentalization)
- Having compassion and kindness
- Shifting from a “doing” state of trying to accomplish something to a “being” state of simply being present together

→Across all of the aforementioned processes, maintaining awareness of the associated bodily sensations and staying with them is essential.

(If time allows)
Simple ventral vagus exercises

- Take a seat
- Slowly rub your thighs
- Place your hand on the top of your head and apply gentle weight
- Hold your forehead and the back of your head with your hands
- Hold both temples with your hands
- Place your hands on your chest and abdomen (centering)
- While centering, slowly move your neck from side to side (focus on moving slowly)

→ Stay with positive bodily sensations.

Thank you
for
your kind attention.