



Trauma and stress related disorders, dissociative disorders.

Overview: Part 1

- Evolutionary perspective
- Physiology of stress
 - Genes and epigenetics
 - Immune system impacts
 - HPA axis
 - ANS
- Stress related disorders
- DSM classifications: Stress disorders
 - Descriptions, symptoms, and treatments



Physiological aspects of stress and trauma

- Physiological stress occurs at several levels:
 - Gene tagging- epigenetics turning genes on and off
 - Immune system reactions
 - Changes in endocrine function
 - HPA axis
 - Autonomic nervous system (ANS)
 - Changes in cortical processes



Stress: Genetic and epigenetic effects

- DNA is wrapped around clusters of proteins known as histones, which are bundled into our chromosomes. When tightly packed they are inactive. When they need to be active part of the DNA unfurls allowing them to be switched on.
- Epigenetic modifications mark a gene:
 - Epigenetic markers “tag a gene”
 - Histone acetylation promotes gene activity = Writer
 - Histone methylation inhibits activity = eraser: Switches it on or off.
- The environment influences writer and eraser tags by switching them on and off to allow the organism to respond.



Epigenetics continued...

- Tags help an organism respond to a changing environment.
- Some tags last a short time whereas others can last a lifetime.
- Example: Maternal influences on stress and behaviour (Weaver et al., 2004) mothers licking rats lead them to be less anxious in adulthood. Because they were nursed they produced less of the stress hormone when faced with a stressful event.
- Conversely, the rats not nursed will become more sensitive to stress throughout their lives. This then passes from generation to generation via methylation processes.
- Strongest evidence for schizophrenia and bipolar disorder (Albert, 2010).

Stress: Immune system effects

- The immune systems function is to recognize foreign agents in the body and then destroy them.
 - Evolved to help organisms protect themselves from pathogens.
 - From an evolutionary perspective, feeling ill would be protective as it would result in withdrawal from dangerous situations as well as allow for rest.
- There are two major types of immunity that protect the organism:
 - **1. General and present at birth:** Respond to a variety of pathogens including bacteria and other toxic organisms. It tends to be fast acting, nonspecific, and usually of short duration..
 - **2. Develops after birth.** Involves in recognizing specific pathogens such as bacteria, viruses or toxins after initial contact. This system is more long lasting and is able to contain a memory of a specific pathogen. This system is also the basis of immunizations for preventing specific diseases.
- Psychoneuroimmunology is the study of how psychological factors affect the immune system.
 - Stress especially trauma suppresses the immune system
 - Negative emotions change immune responses and delay healing
 - As does loneliness, poor social support, bereavement and disaster
 - Immune system influences brain and therefore behaviour



Selye's General Adaptation Syndrome (GAS)

- Three stages
 - **Alarm reaction-**
 - Initial stress response (fight or flight) due to activation of the SAM axis which is mediated by adrenaline and noradrenaline: **sympathetic ANS**
 - **Resistance stage-**
 - The body tries to adapt to a stressor; arousal higher than normal but not as intense as initial phase: This is mediated by acetylcholine and the HPA axis: **parasympathetic ANS** and the release of adrenaline, noradrenaline and glucocorticoids.
 - **Exhaustion-**
 - Depletion of body resources and energy, diseases of adaption (CVD, arthritis, asthma).
- Therefore we now know that stress involves the two branches of the ANS and the HPA system.

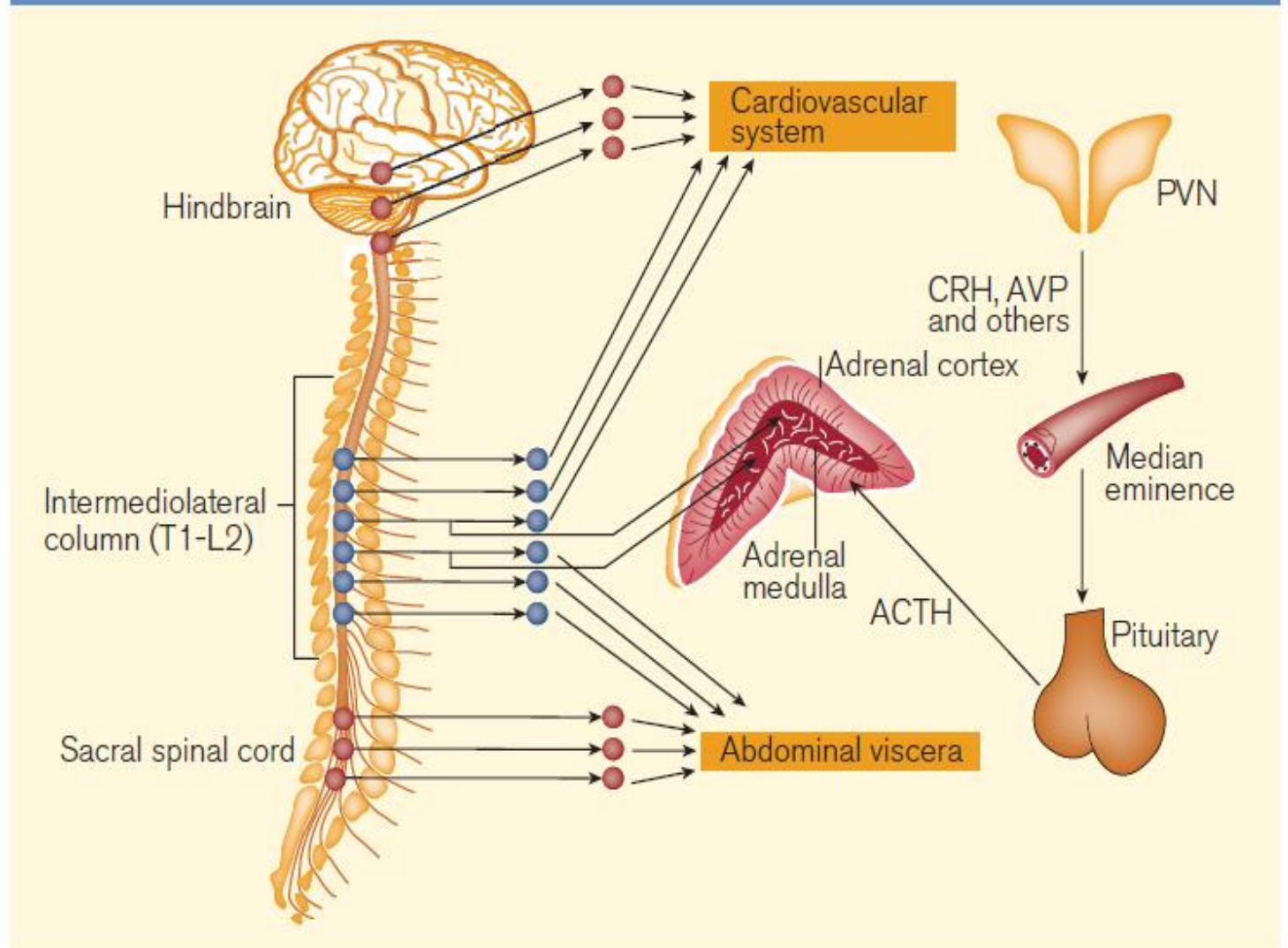
Stress: HPA axis responses

- Autonomic nervous system and a network of hypothalamic, pituitary and adrenal responses, the cardiovascular system, metabolism, and the immune system evolved to protect the organism.
- The basic consequence of these pathways is to prepare the body for action.
- The stress response is accomplished by a variety of interacting systems which include the amygdala and other cortical systems which results in the hypothalamus activating the sympathetic nervous system and the HPA axis.
- Basic HPA process: The brain through the hypothalamus produces a substance referred to as CRH which in turn produces ACTH in the pituitary. ACTH in the blood in turn results in the adrenal glands producing glucocorticoids. HPA is under excitatory control of amygdala and inhibitory control of the hippocampus. Hippocampus releases CRF which is transported to adrenal cortex which releases cortisol.

HPA axis:

- Is implicated in psychosis in adolescence
- Axis overactivity implicated in anxiety and depression
- Medical disorders which have elevated levels of cortisol also have increased risk of psychosis
- Reduced hippocampal volume can lead to psychosis

Figure 9-2 Physiological Response to Psychology Stress



SOURCE: Ulrich-Lai and Herman (2009).

Stress: ANS responses

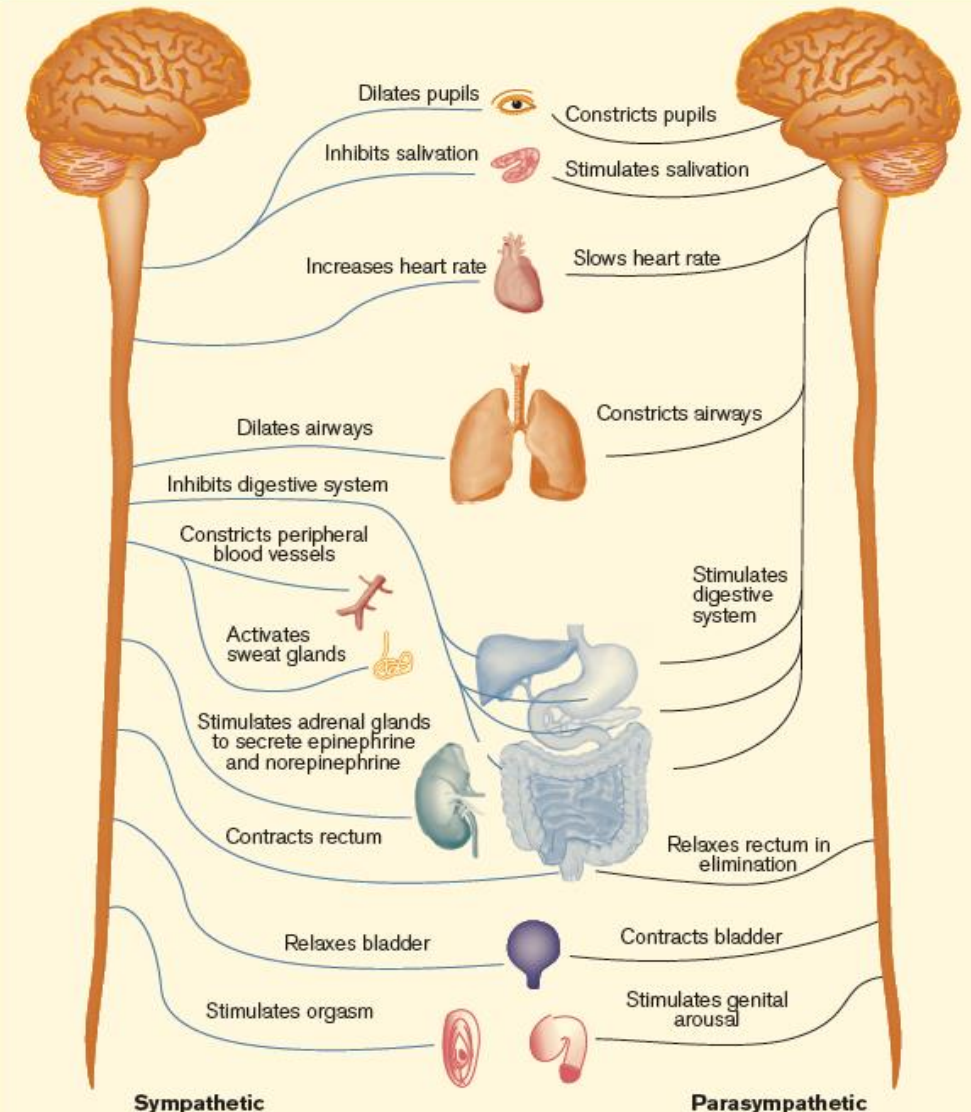
- ANS has three functions.
 1. Maintain homeostatic conditions within the body.
 2. Coordinate the body's response to exercise and stress.
 3. ANS helps the endocrine system regulate reproduction.
- The autonomic nervous system is divided into two parts:
 - Sympathetic: "fight or flight"
 - Parasympathetic: Restorative function
- It should be noted that although the sympathetic and parasympathetic systems are often seen to function in the opposite manner, the actual relationship between the two is much more complicated.



ANS system

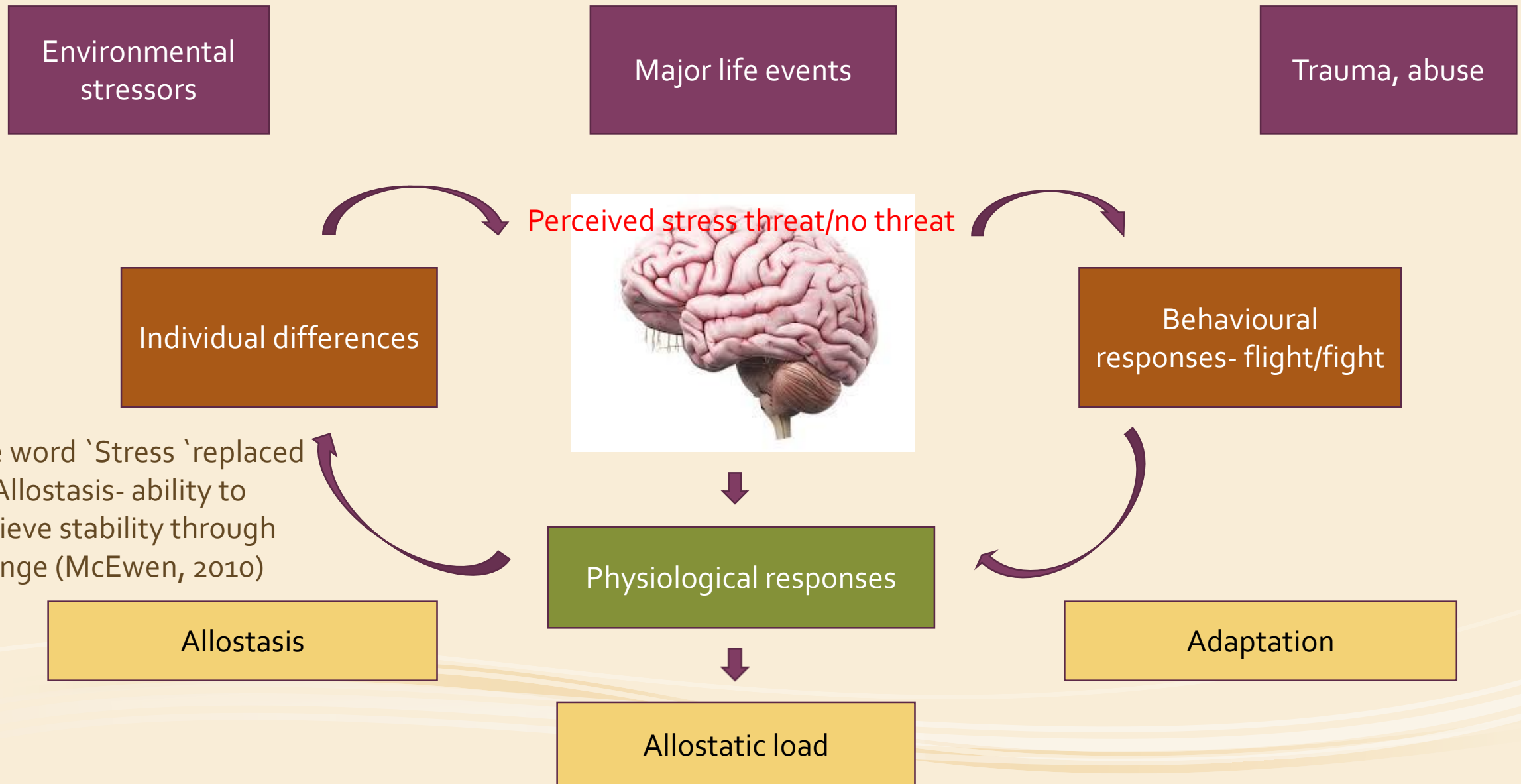
- **sympathetic division:** the element of the autonomic nervous system that connects with its target organs through the middle part of the spinal cord, responsible for the fight-or-flight response. A continuous adrenergic influence
- **parasympathetic division:** the element of the autonomic nervous system involved in the restoration of bodily reserves and the elimination of bodily waste; it connects through the upper and lower parts of the spinal cord. A cholinergic influence to bring about homeostasis

Figure 9-4 Sympathetic and Parasympathetic Branches of the Autonomic Nervous System and the Internal Organs Targeted



SOURCE: Garrett (2010, Figure 3.21, p. 73).

The Brain interpretation of experience and threat



Social stress vs. physical stress



- The evolutionary link that connects social challenges with the stress system for life-and-death situations not as well understood as the link between physical stress and the physiological response to stress.
- Early exposure to social stress will modify how the stress response is expressed in later life.
 - The HPA axis has been linked to stress, depression and psychosis in adolescence.
 - Children who experience trauma (e.g., abuse, death of a parent, divorce) show larger stress responses to social stress later in life.
 - It is not the case however that early physical stress (e.g., hurricanes or political upheaval) results in a differential stress response.

Psychological disorders related to stress: DSM-5 Categories

- Reactive Attachment Disorder
- Disinhibited Social Engagement Disorder
- Acute Stress Disorder
- Posttraumatic Stress Disorder
- Adjustment Disorders
- Trauma- or Stressor- Related Disorder
- Unspecified Trauma- or Stressor- Related Disorder



Reactive Attachment Disorder

- A. A consistent pattern of inhibited, emotionally withdrawn behaviour toward adult caregivers manifested by both of the following:
 - The child rarely or minimally seeks comfort when distressed.
 - The child rarely or minimally responds to comfort when distressed.
- B. A persistent social and emotional disturbance characterised by at least two of the following:
 - Minimal social and emotional responsiveness to others.
 - Limited positive affect.
 - Episodes of unexplained irritability, sadness or fearfulness that are evident even during nonthreatening interactions with adult caregivers.

- C. The child has experienced a pattern of extremes of insufficient care as evidenced by at least one of the following:
 - Social neglect or deprivation in the form of persistent lack of having basic emotional needs for comfort, stimulation and affection met by caregiving adults.
 - Repeated changes of primary caregiver that limit opportunities to form stable attachments.
 - Rearing in unusual settings that severely limit opportunities to form selective attachments.
- D. The care in criterion C is presumed to be responsible for the disturbed behaviour in criterion A (i.e. the disturbances began following a lack of adequate care).
- E. The criterion are not met for autism spectrum disorder.
- F. The disturbance is evident before age 5 years.
- G. The child has a developmental age of at least 9 months.

Disinhibited Social Engagement Disorder

- A. A pattern of behaviour in which a child actively approaches and interacts with unfamiliar adults and exhibits at least two of the following:
 - Reduced or absent reticence in approaching and interacting with unfamiliar adults.
 - Overly familiar verbal or physical behaviour (not consistent with culturally sanctioned or age appropriate boundaries).
 - Diminished or absent checking back with adult caregiver after venturing away even in unfamiliar settings.
 - Willingness to go off with an unfamiliar adult with minimal or no hesitation.
- B. The behaviours in criterion A are not limited to impulsivity (as in ADHD) but include socially disinhibited behaviour.

- C. The child has experienced a pattern of extremes if insufficient care as evidenced by at least one of the following:
 - Social neglect or deprivation in the form of persistent lack of having basic emotional needs for comfort, stimulation, and affection met by adult caregivers.
 - Repeated changes of primary caregivers that limit opportunities to form stable attachments.
 - Rearing in unusual settings that severely limit opportunities to form selective attachments.
- D. The care in criterion C is presumed to be responsible for the disturbed behaviour in criterion A.
- E. The child has a developmental age of at least 9 months.

Adjustment disorders

- The development of emotional or behavioural symptoms in response to an identifiable stressor(s) occurring within three months of the onset of the stressor(s).
- In the case of the Related to Bereavement Subtype, 12 months of symptoms (or 6 months for children) are required after the death of a close family member or close friend.
- These symptoms or behaviors are clinically significant, as evidenced by one or both of the following:
 - Marked distress that is in excess of what would be proportionate to the stressor, taking into account the external context and the cultural factors that might influence symptom severity and presentation.

- Significant impairment in social, occupational, or other important areas of functioning.
- The stress-related disturbance does not meet the criteria for another mental disorder and is not merely an exacerbation of a pre-existing mental disorder.
- Once the stressor, or its consequences, has terminated, the symptoms do not persist for more than an additional 6 months. (Note: This does not apply to the Related to Bereavement Subtype.)



- These disorders represent up to 20% of those seeking mental health treatment in the US.
- The figures are higher in females than males (60/40) (Yates & Zhou , 2002).
- Very limited research based on therapeutic treatment efficacy.
- Treatments usually same as for anxiety disorders and PTSD.



Acute stress disorder

A. Exposure to actual or threatened: a) death, b) serious injury, c) sexual violation, in one or more of the following ways: **direct, observation, family member, repeated exposure to details.**

B. Presence of nine (or more) of the following symptoms in any of the four categories of intrusion, dissociation, avoidance, and arousal, beginning or worsening after the traumatic events occurred:

- **Intrusion Symptoms**
- **Dissociative Symptoms**
- **Avoidance Symptoms**
- **Arousal Symptoms**



Intrusion symptoms

- Recurrent involuntary and intrusive memories
- Recurrent distressing dreams
- Dissociative reactions e.g. flashbacks
- Intense or prolonged psychological distress or physiological reactions



Negative mood and Dissociative symptoms

- Persistent inability to experience positive emotions
- Altered sense of own surroundings- e.g. being in a daze
- Inability to remember important parts of the event



Avoidance symptoms

- Efforts to avoid distressing memories
- Efforts to avoid external reminders of the event



Arousal symptoms

- Sleep disturbances
- Irritable behaviour and angry outbursts
- Hyper-vigilance
- Problems with concentration
- Exaggerated startle response



- C. Duration of the disturbance (symptoms in Criteria B) is 3 days to 1 month after trauma exposure. (Note: Symptoms typically begin immediately after the trauma, but persistence of at least 3 days and up to a month is needed to meet disorder criteria)
- D. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- E. The disturbance is not attributable to the direct physiological effects of a substance (e.g., medication or alcohol) or another medical condition (e.g. mild traumatic brain injury), and the symptoms are not better accounted for by those of Brief Psychotic Disorder.



- The prevalence varies in terms of the assault. Highest rates (20-50%) are found in rape and mass shootings, with motor vehicle accidents rates between (13-21%) (Suliman et al., 2013).
- Prevalence is higher in females than males.



Post traumatic stress disorder (PTSD)

- A. The person was exposed to one or more of the following event(s): death or threatened death, actual or threatened serious injury, or actual or threatened sexual violation, in one or more of the following ways: **direct, observation, family member, repeated exposure to details.**
- B. Intrusion symptoms that are associated with the traumatic event(s) (that began after the traumatic event(s)), as evidenced by 1 or more of the following: **recurring, involuntary, intrusive distressing memories, dreams or dissociative factors such as flashbacks.**
- C. Persistent avoidance of stimuli associated with the traumatic event(s) (that began after the traumatic event(s)), as evidenced by efforts to avoid 1 or more of the following: **thoughts, memories, feelings, places, objects, situations.**
- D. Negative alterations in cognitions and mood that are associated with the traumatic event(s) (that began or worsened after the traumatic event(s)), as evidenced by 3 or more of the following: Note: In children, as evidenced by 2 or more of the following: **amnesia, negative expectations, self blame, negative emotions, detachment from others, lack of interest, lack of positive emotions.**

- E. Alterations in arousal and reactivity that are associated with the traumatic event(s) (that began or worsened after the traumatic event(s)), as evidenced by 3 or more of the following: Note: In children, as evidenced by 2 or more of the following: **irritation, anger, self destructive behaviour, recklessness, poor concentration, exaggerated startle, sleep disturbance.**
- F. Duration of the disturbance (symptoms in Criteria B, C, D and E) is more than one month.
- G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- H. The disturbance is not due to the direct physiological effects of a substance (e.g., medication or alcohol) or a general medical condition (e.g., traumatic brain injury, coma).

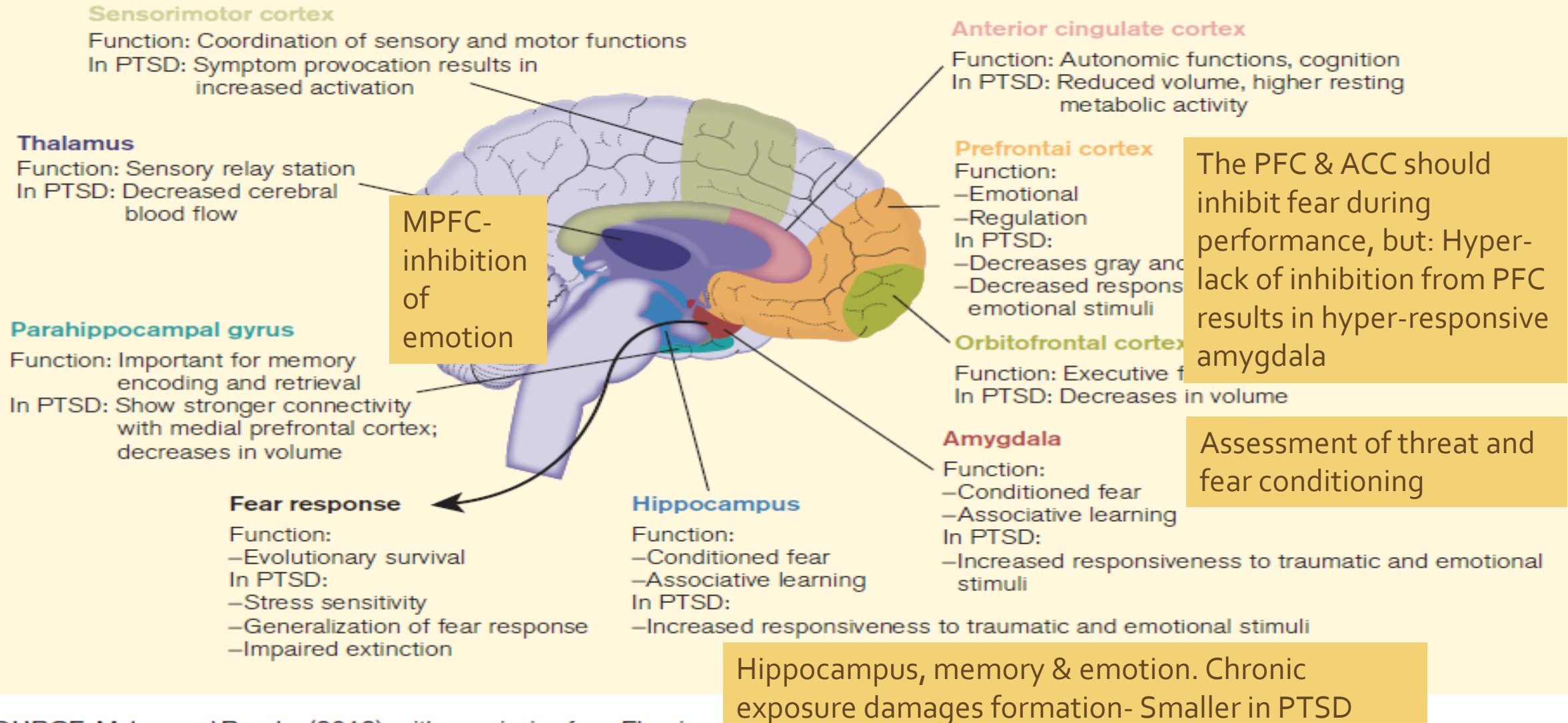
PTSD causes

- Threats that produce intense fear, helplessness or horror can lead to PTSD.
- In addition to war, family and social violence, rape and assaults, and accidents also can cause PTSD.
- The highest risk for PTSD is assaultive violence.
- Cumulative stress also appears to lead to PTSD.
- Serious accident, natural disasters, criminal assault, military, sexual assault, child sexual abuse, physical abuse or neglect, hostage, imprisonment, torture, witnessing or learning about traumatic events.



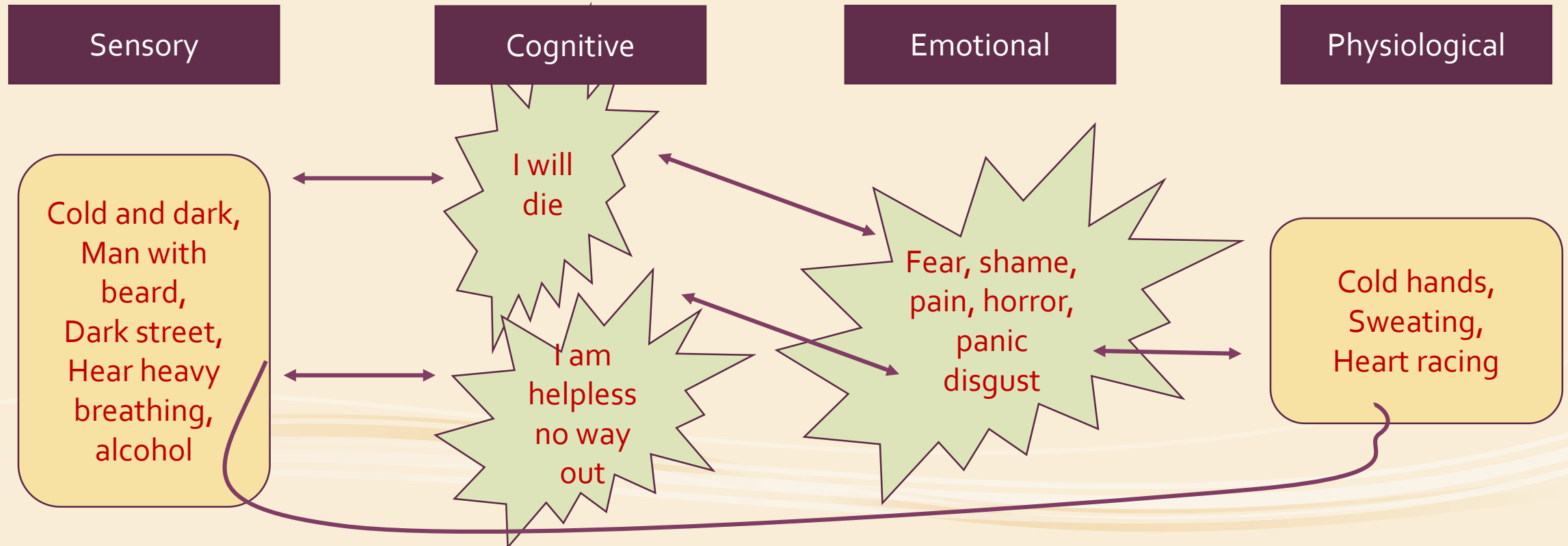
Physiological aspects of PTSD

Figure 9-6 Areas of the Brain Related in Psychological Stress and Trauma



Treating PTSD: Trauma network

- An interesting idea based on the neural networks involved at an associative and cortical level.
- Some associations become more 'hot' than others which remain 'cold' (Rockstroh & Elbert, 2010). Repeated experiences of trauma make it difficult to integrate the experiences into less emotional or cold autobiographical memories. A goal of therapy is to move the hot associations into more cold non reactive memory processes.



PTSD Treatment

- PTSD is frequently comorbid with other disorders such as depression, substance abuse, and anxiety disorders such as OCD, panic disorder, agoraphobia, and social anxiety.
- The most effective PTSD therapies are cognitive and behavioural therapies.
- Exposure therapy has also been effective, as has cognitive restructuring and EMDR (Bisson & Andrew 2007: eye movement desensitization reprocessing).
- EMDR does work but is controversial (Russell, 2008).
- Pharmacological treatments such as antidepressants, anxiolytics, adrenergic inhibitors, mood stabilizers and anticonvulsants have also been used to treat PTSD.
- Key ingredient is controlled re-experiencing (catharsis). In addition is the sense of mastery.

Overview: Part 2



- What are dissociative disorders?
 - Depersonalization-Derealization Disorder
 - Dissociative Amnesia
 - Dissociative Identity Disorder (DID)
- Treatment of dissociative disorders
- What are somatic symptom disorders?
 - Somatic Symptom Disorder
 - Illness Anxiety Disorder
 - Conversion Disorder (Functional Neurological Symptom Disorder)
 - Factitious Disorder
 - Psychological Factors Affecting Medical Condition
- Treatment of somatic symptom disorders

Dissociative disorders

- Dissociations can be normal experiences (e.g., highway hypnosis).
- Dissociative disorders more common in women than men.
- Likely to co-occur with anxiety, mood, and personality disorders.
- Symptoms typically associated with a trauma.
- Similar to hypnosis or not?



Dissociative disorders: Prevalence

Figure 11-1 Prevalence of Dissociative Disorders at Mean Age

	Prevalence of disorder in the past year		
	Males (<i>N</i> = 309) <i>n</i> (%)	Females (<i>N</i> = 349) <i>n</i> (%)	Total sample (<i>N</i> = 658) <i>n</i> (%)
Dissociative disorder			
Depersonalization disorder ^a	2 (0.6)	3 (0.9)	5 (0.8)
Dissociative amnesia	3 (1.0)	9 (2.6)	12 (1.8)
Dissociative identity disorder (DID)	5 (1.6)	5 (1.4)	10 (1.5)
Dissociative disorder not otherwise specified (DDNOS)	21 (6.8)	15 (4.3)	36 (5.5)
Any dissociative disorder	30 (9.7)	30 (8.6)	60 (9.1)

SOURCE: Johnson et al. (2006, p. 135), with permission from Elsevier.

^aOne individual met the diagnostic criteria for both depersonalization disorder and dissociative amnesia. Two individuals met the criteria for both depersonalization disorder and DID.

^bThe differences in the prevalence of dissociative disorders among males females were not statistically significant.

Depersonalization-Derealization Disorder

- Depersonalization is the experience of not experiencing the reality of one's self.
 - This experience can include feeling detached, or observing one's self as if you were an outside observer.
- Derealization is the experience that the external world is not solid.
 - Includes a sense of detachment as if in a fog, dream.
 - 50% of Americans have experienced this in their lifetime (APA, 2013).
 - There are no gender differences.
 - Onset in adolescence and none after age 25.
 - Mean duration of illness 15.7 years.
 - Both are normal reactions to acute stress, UNTIL they interfere **with daily life**.
 - Interestingly reality testing is still possible.
 - A hard wired inhibitory response to decrease arousal?



Depersonalization and Derealization Disorder

- Individuals with depersonalization disorder may show inhibitory responses to negative emotional information.
- Depersonalization and/or derealization can be normal reactions to acute stress.
- The factors that allow these stress responses to move to a pathological state are still being determined.
- To date, PET scans suggest that the areas of the brain responsible for integrating body schema and a lower rate of metabolic activity in sensory cortex may be responsible.



Dissociative Amnesia

- Inability to recall important autobiographical information.
 - Memory loss in terms of dissociative amnesia appears to be of a particular 1st person nature rather than a global memory disorder. Procedural memory and making new memories are unaffected.
 - Can last a few days or a few years.
 - Occurs most often in individuals in 30`s or 40`s.
 - Prevalence is 1.8% with a 2:6% female to male ratio (APA, 2013).
- In DSM-5, dissociative amnesia and dissociative fugue are considered under the category of dissociative amnesia.
- Dissociative fugue: Characterized by sudden, unexpected travel away from home with an inability to recall the past.



Michael Boatwright

- Found unconscious in a hotel room and taken to Desert Regional Medical Centre, Palm springs.
- He said he was Johan Ek and Swedish. He had 5 tennis rackets, two mobile phones, a duffel bag with athletic clothes, money, photographs and identification cards.
- These identified him as Michael Boatwright. He remained there for a few weeks whilst being appraised.
- The hospital used his identification details and found that he had flown in from China, where he had taught English and was a graphic designer. He had previously lived in Japan and Sweden for 10 years.
- They found further pictures from contacts, and although he did not recognise them, they did bring him a source of comfort.

DID- dissociative identity disorder



- Previously referred to as multiple personality disorder.
- Characterized by a poorly integrated sense of self-
 - The person does not experience their thoughts, feelings, or actions in terms of a well-developed "I" Rather, the person experiences different "personalities" at different times.
- DID is a complex disorder related to trauma occurring before age 6.
 - This is the time at which a sense of self is in development.
- Prevalence is estimated to be between 1% and 3%, slightly more males seen than females, but more women in clinical settings.
- Cultural differences exist.



DID: Symptoms

● **Table 11-1** Frequency of Core Features of Dissociative Identity Disorder From Large-Scale Investigations

Core Feature	Putnam et al., 1986 (N= 100)	Coons et al., 1988 (N= 50)	Ross et al., 1989 (N= 236)	Ross et al., 1990A,B (N= 102)	Boon & Draijer, 1993A,B (N= 71)
Amnesia	98.0	100.0	94.9	100.0	99.0
Identity alteration	—	—		81.4	100.1
Depersonalization	55.0	38.0	—	—	100.0
Derealization	—	—	—	56.9	73.1
Auditory hallucinations	29.0	72.0	71.7	82.4	94.0
Childhood abuse	97.0	96.0	88.5	95.1	94.4

SOURCE: Gleaves et al. (2001, p. 579) , with permission from Elsevier.

NOTE. All values are percentages of persons reportedly experiencing the symptom.

People with DID:

- The woman with seven personalities
- Kim Noble



Common themes – Diagnosis DSM5

- A loss of the normal integration of cognitive functioning.
- This includes the sense of self, autobiographical memory, sense of control and agency and an integrated awareness of functioning.

Diagnostic Criteria 300.14 (F44.81)

A. Disruption of identity characterized by two or more distinct personality states, which may be described in some cultures as an experience of possession. The disruption in identity involves marked discontinuity in sense of self and sense of agency, accompanied by related alterations in affect, behaviour, consciousness, memory, perception, cognition, and/or sensory-motor functioning. These signs and symptoms may be observed by others or reported by the individual.

B. Recurrent gaps in the recall of everyday events, important personal information, and/ or traumatic events that are inconsistent with ordinary forgetting.

C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The disturbance is not a normal part of a broadly accepted cultural or religious practice. Note: In children, the symptoms are not better explained by imaginary playmates or other fantasy play.

E. The symptoms are not attributable to the physiological effects of a substance (e.g., blackouts or chaotic behaviour during alcohol intoxication) or another medical condition (e.g., complex partial seizures).

Dissociative disorders

- The common theme for all dissociative disorders is the loss of normal integration of cognitive functioning. This includes the persons sense of self, autobiographical memory, control, agency and integrated awareness of functioning.
- It is seen as a way to avoid distress and trauma.
- The usual explanations have been offered: Psychodynamic, Cognitive (disruption in memory processes, reconstructive memory, reality and/or source monitoring, repressed memories), biological explanations- trauma, stress, hippocampal abnormalities) and role playing...

Dissociative disorders: Treatment



- Some dissociative disorders may resolve on their own (e.g., dissociative amnesia).
- DID requires long term treatment.
 - Long term psychotherapy.
 - In therapy, focus on a relationship between the client and the therapist is important.
 - The emphasis is on developing a safe place where individuals can experience and integrate the various parts of themselves.
- At present there are no empirically supported principles which have been tested in terms of dissociation. However, techniques from CBT, humanistic-existential, and dynamic approaches have been used.

Somatic Symptom Disorder

- Most of us experience some sort of somatic symptom in a given week (e.g., feeling a pain in our leg, or a stomach ache).
- If the pain persists most people see their doctor and if no illness is found they are relieved.
- Those with somatic disorders continue to worry and look for causes for their illness.
 - Somatic symptom disorders: Interface between psychological processes and medical ones. It is not a psychosomatic illness; these are physical illnesses where psychological factors play an important role.
- Doctors in emergency rooms will also describe cases in which individuals fake medical disorders for other types of gain.
 - Malingering vs. factitious disorder.
- Prevalence is around 5-7% with more women- why?



Somatic Symptom Disorder



- Occurs when a person's somatic symptoms (bodily) cause distress or disruption.
 - Symptoms are not consistent with a medical disorder.
- Symptoms include: Persistent thoughts about the seriousness of symptoms, high levels of anxiety about health, spending excessive time and energy on health.
- Further, these characteristics must have lasted for longer than 6 months.

Illness Anxiety Disorder

- Preoccupation with the possibility of having a serious illness.
 - Unlike somatic symptom disorder, the person experiences few if any symptoms. This disorder was previously referred to as hypochondriasis.
- Those with illness anxiety disorder were shown to have a more restrictive concept in that they saw bodily symptoms as incompatible with good health.
- Further, if asked to compare symptoms in another person or themselves, those with illness anxiety disorder saw symptoms in themselves as more severe than those in others.

- These individuals are not reassured despite seeking help.
- Frequent and repetitive checking of their body for symptoms.
- Some individuals actually avoid seeking help from a GP.
- DSM5 makes the distinction between the `development` of the disorder, and the `actual symptoms` themselves.
- Some have argued that this is simply an anxiety disorder with the focus being the body. However, Hiller et al., (2005) points out that these individuals are very different in the way in which they view good and poor health- not comparable against other anxiety disorders.



Conversion disorder (Hysteria)

- Conversion disorder: Sensory or motor symptoms such as not being able to hear or see or feel pain or move a part of the body.
- Symptoms do not follow known physiological or neurological patterns.
 - E.g., Glove anesthesia
- In comparison to malingering and factitious disorder in which a person voluntarily creates the symptoms, conversion disorder is seen to take place in an involuntary manner outside of the person's consciousness.



Conversion disorder

- Common symptoms: Paralysis, seizures, tremor, blindness, anesthesia, and problems with movement.
- Conversion disorders often comorbid with anxiety, depression, and personality disorders.
 - In some cases, the conversion symptoms develop after an emotional stress or trauma.
- The specific neuroscience mechanisms that underlie conversion disorder are still to be fully understood.
- Recent refocus on attention towards these.



Research on conversion disorder

- Neural mechanisms not well understood.
- Possible role of mirror neuron system? Lack of creating internal representation of movement whilst watching another individual perform the movement.
- Overall the brain imaging data suggest those with conversion disorder show differences in their cortical networks from healthy controls.
- Motor pathways suppressed by emotional experience inhibition...

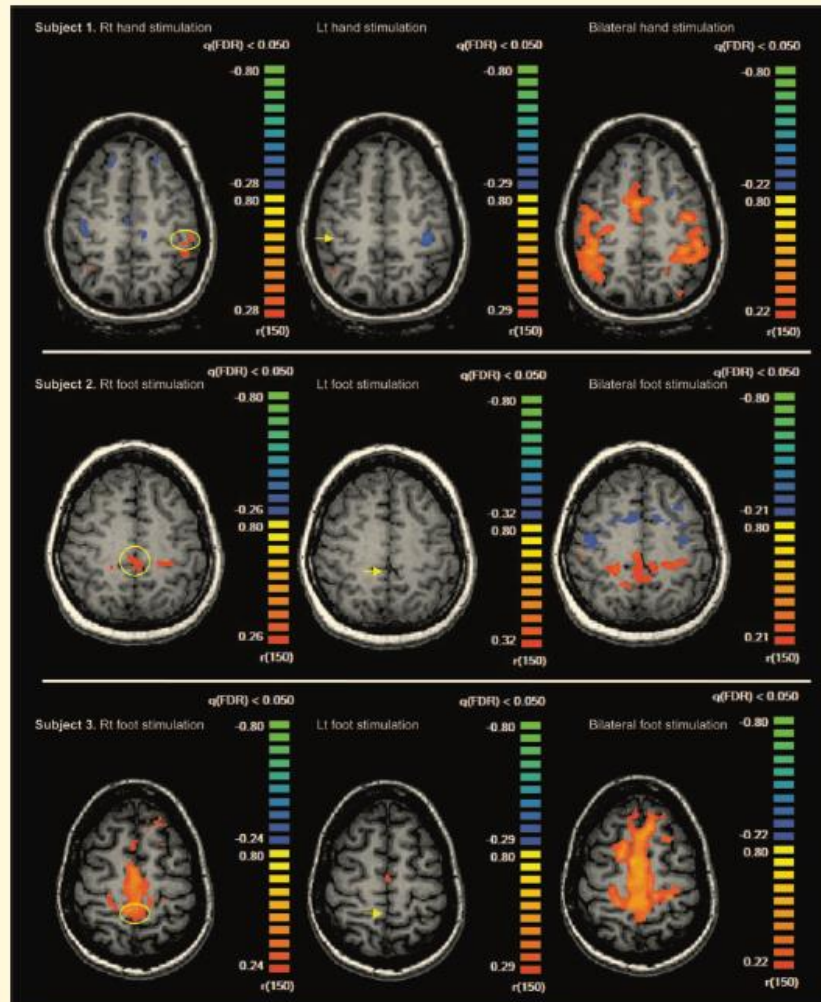


Three studies

- Study 1: three women between 34 and 44, suffered left limb numbness and tingling for up to 9 years. fMRI studies revealed that no brain activity was present in the contralateral side to the numbness when each limb was stimulated separately. However, when both sides stimulated together there was double sided activation (Ghaffar et al., 2006).
- Study 2: Burgmer et al., (2006) looked at mirror neurone activity in 7 healthy controls and 4 with functional paralysis. There was no brain activity evident in the contralateral hemisphere when observing movement, suggesting these individuals do not create internal (motor) representations.
- Study 3: Cojan et al., (2009) used a go-nogo task with female in fMRI. Given a cue, followed by a grey hand then followed by either green or red hand. Activation was present when PREPARING to move but inhibited when GOING to move.
- This suggests that compared to controls, different brain regions are involved. The default mechanism for preparation and the internal focus mechanism to act. **An inability to turn off the default mechanism and use the internal focus?**

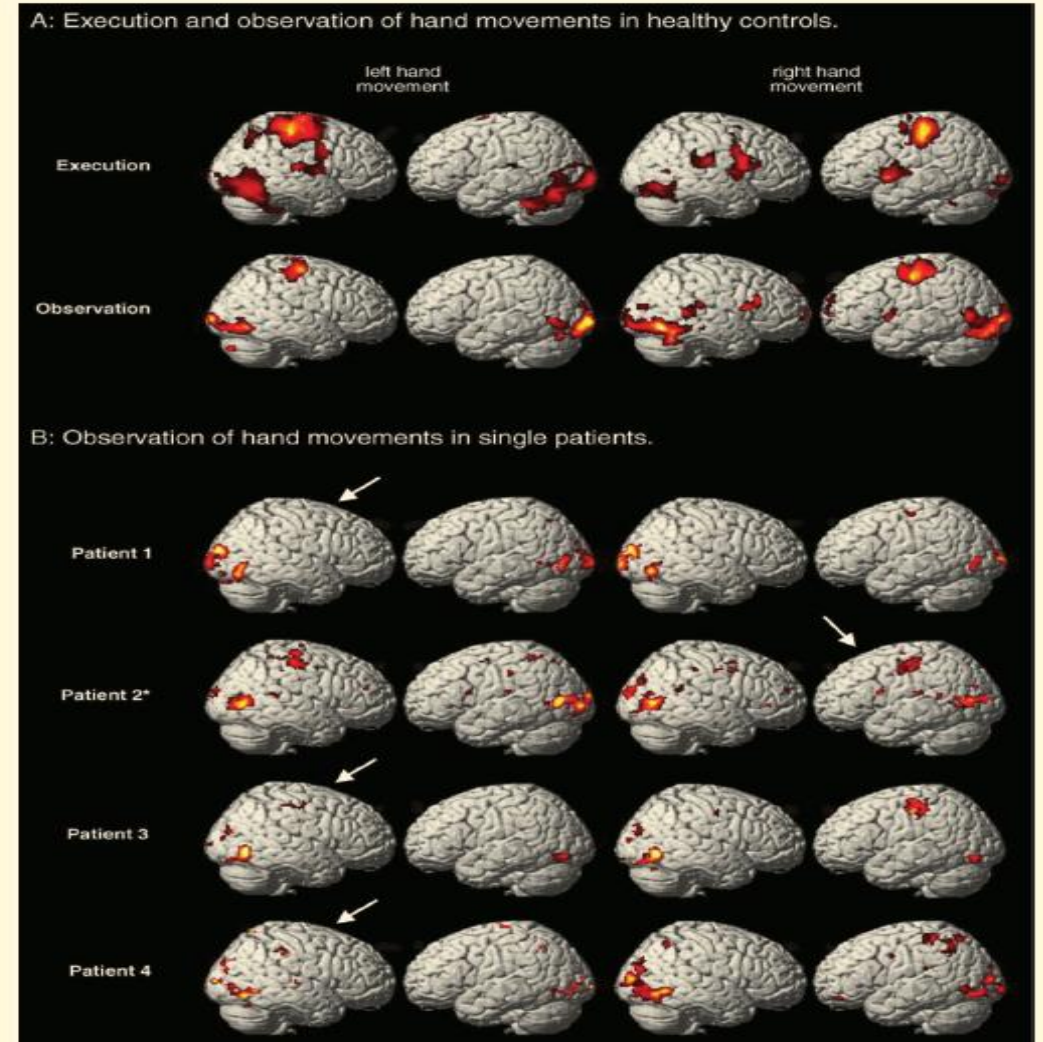
Research examples: Conversion disorder

Figure 11-6 Unexplained Neurologic Symptoms



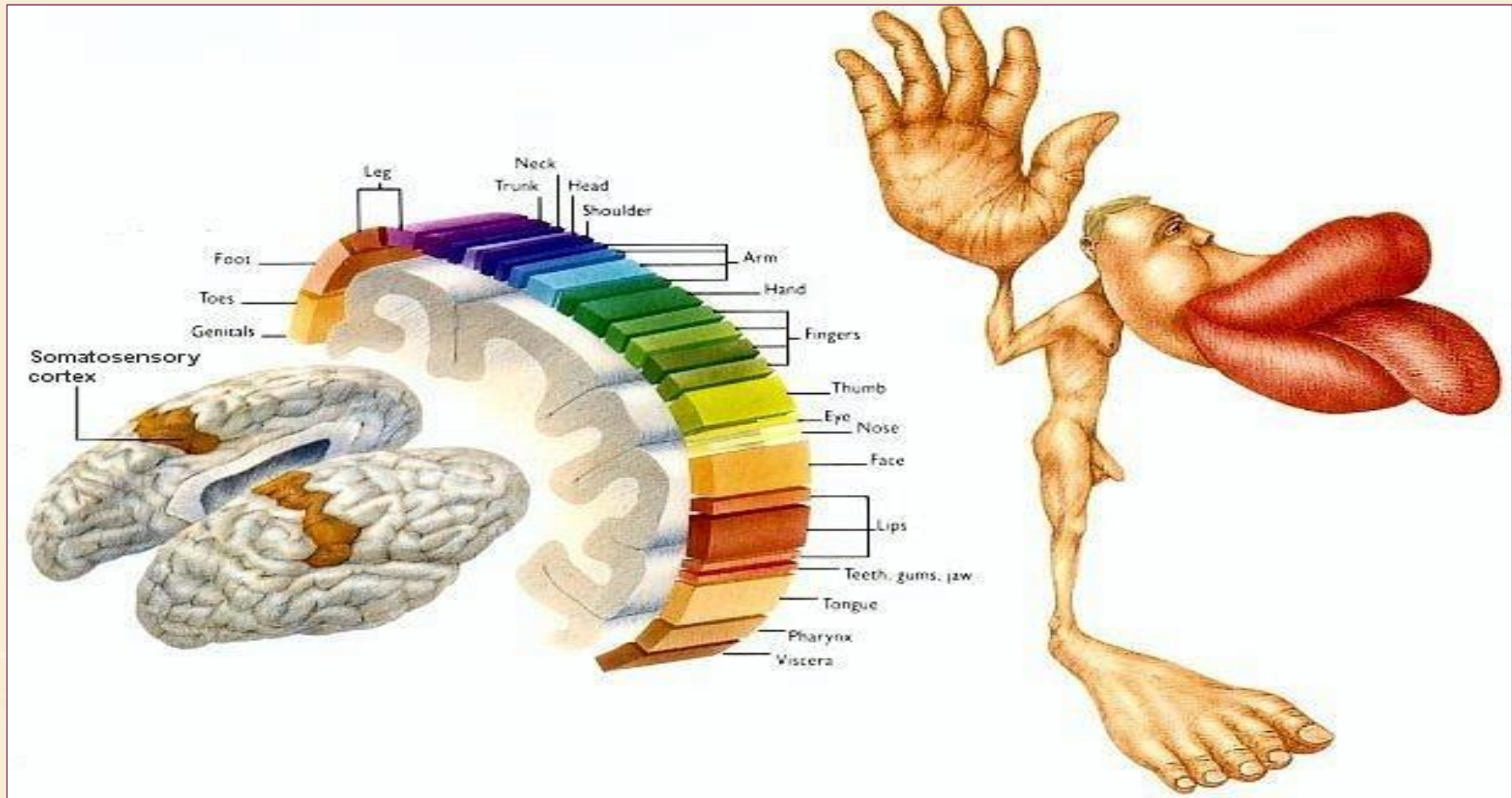
SOURCE: From Omar Ghaffar et al. "Unexplained neurologic symptoms: An fMRI study of sensory conversion disorder." *Neurology Online*. <http://www.neurology.org/content/67/11/2036.short> © 2012 American Academy of Neurology.

Figure 11-7 Top Two Rows Show Brain Activation for Healthy Controls While They Move or Watch Movement



SOURCE: Burgmer et al. (2006), with permission from Elsevier.

Awareness of the body and brain: Phantom limb and mirror neurons.



Psychological factors affecting medical conditions

- Begins with a person having a medical condition.
- Psychological factors adversely affect recovery and treatment.
- Example: interference with medication compliance, stress or anxiety producing physiological changes that interferes with recovery.



Factitious disorder

- A person creates the symptoms seen by the health care professional.
 - Examples: Taking laxatives or inject insulin to mimic an actual physical disorder such as a stomach flu or low blood sugar.
- Attempts to manipulate the health care system by seeking extra medical tests or even medical procedures such as surgery.
- When the person does not receive the attention they seek, they may become angry and claim mistreatment.
 - Factitious disorder imposed on self vs. factitious disorder imposed on another Munchausen syndrome and Munchausen syndrome by proxy.
 - Sheriden (2003) Almost exclusively women.
- Factitious disorder vs. malingering

An example



- One case study had more than 400 pages of notes.
- Started at age 2, child admitted to A & E for injury to ankle that wouldn't heal.
- For the next 8 years, the child underwent 28 hospitalisations, 24 surgeries and episodes of high temperatures, swellings, infection etc.
- Unknown that the mother was repeatedly hitting ankle with a hammer, placing soil or coffee in the wound to prevent the healing process.
- The mother was a nurse...

Treatment of somatic symptom disorders

- Most common treatment: Education.
- Why? Usually presents itself in a clinical setting.
 - Health care professional discuss aspects of the patient's stress and suggests with his or her symptoms will improve. 50% improvement by discharge (Sumathipala, 2007).
- Therapeutic approach: CBT is generally effective.
- Antidepressants have also been used.
- Treatment research is very limited in this area.
- But, CBT especially good for physical symptoms, psychological distress and disability (Woodfolk et al., 2007).

Next week:
OCD and SUD...

