

NPpsych

Neuropsychological Rehabilitation

# Understanding psychological trauma in the context of ABI

---

Dr Neil Parrett



Healthcare  
& Pharmaceutical  
Awards 2019



Healthcare  
& Pharmaceutical  
Awards 2020



The  
British  
Psychological  
Society

hcpc health & care  
professions  
council

# Objectives

---

Brief history of nervous system evolution

A theoretical model for emotions

What is psychological trauma and which emotional systems are activated in trauma

Interventions to support trauma

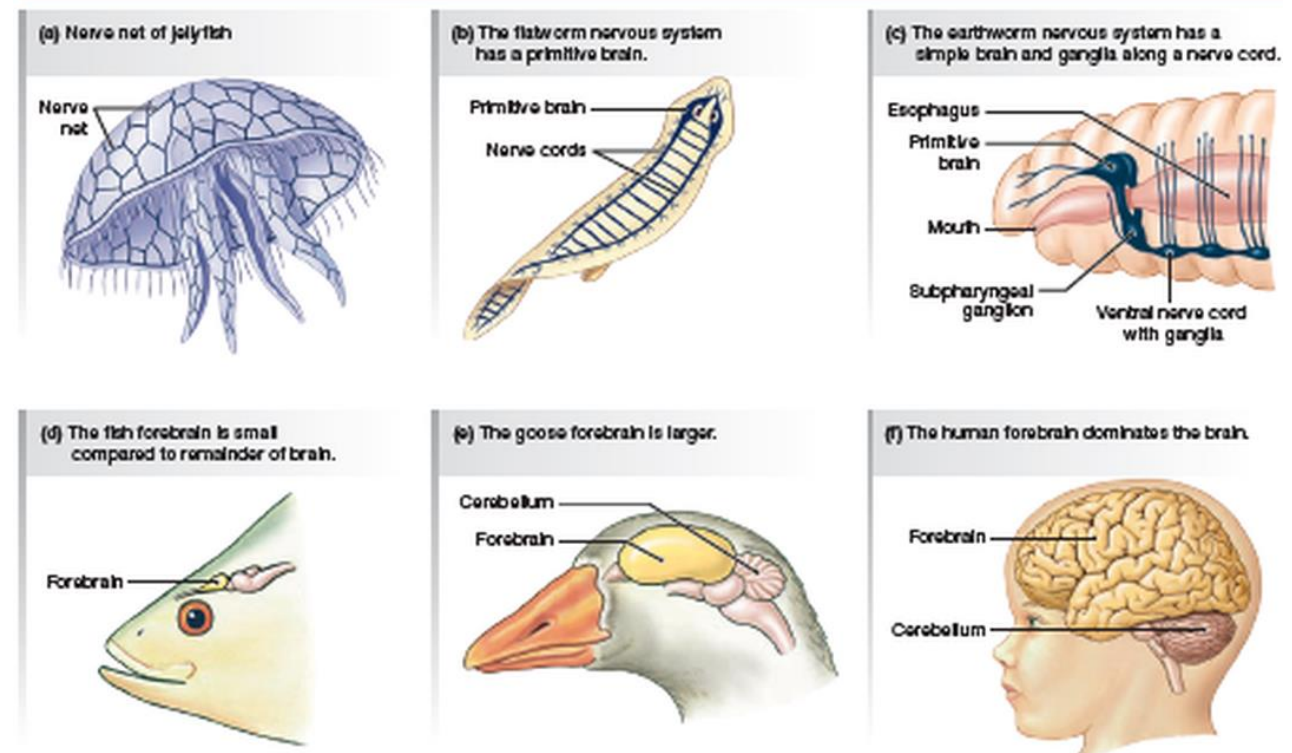
Considerations for psychological trauma in the context of ABI

Some alternative approaches worth considering

# A brief history of the nervous system

- As single cell organisms evolved in to multiple celled organism, a method of internal communication was required to ensure the different parts of the organism worked together to optimise favourable conditions and minimise harm
- The larger and more complex organisms became, the larger and more complex the communication system that was required to sense the environment around them, move towards nutrition and away from harm
- Ultimately the network of nerves began to evolve 'brains' to manage and co-ordinate the ever increasing complexity of the lived environment

**FIG. 9.1** Evolution of the nervous system

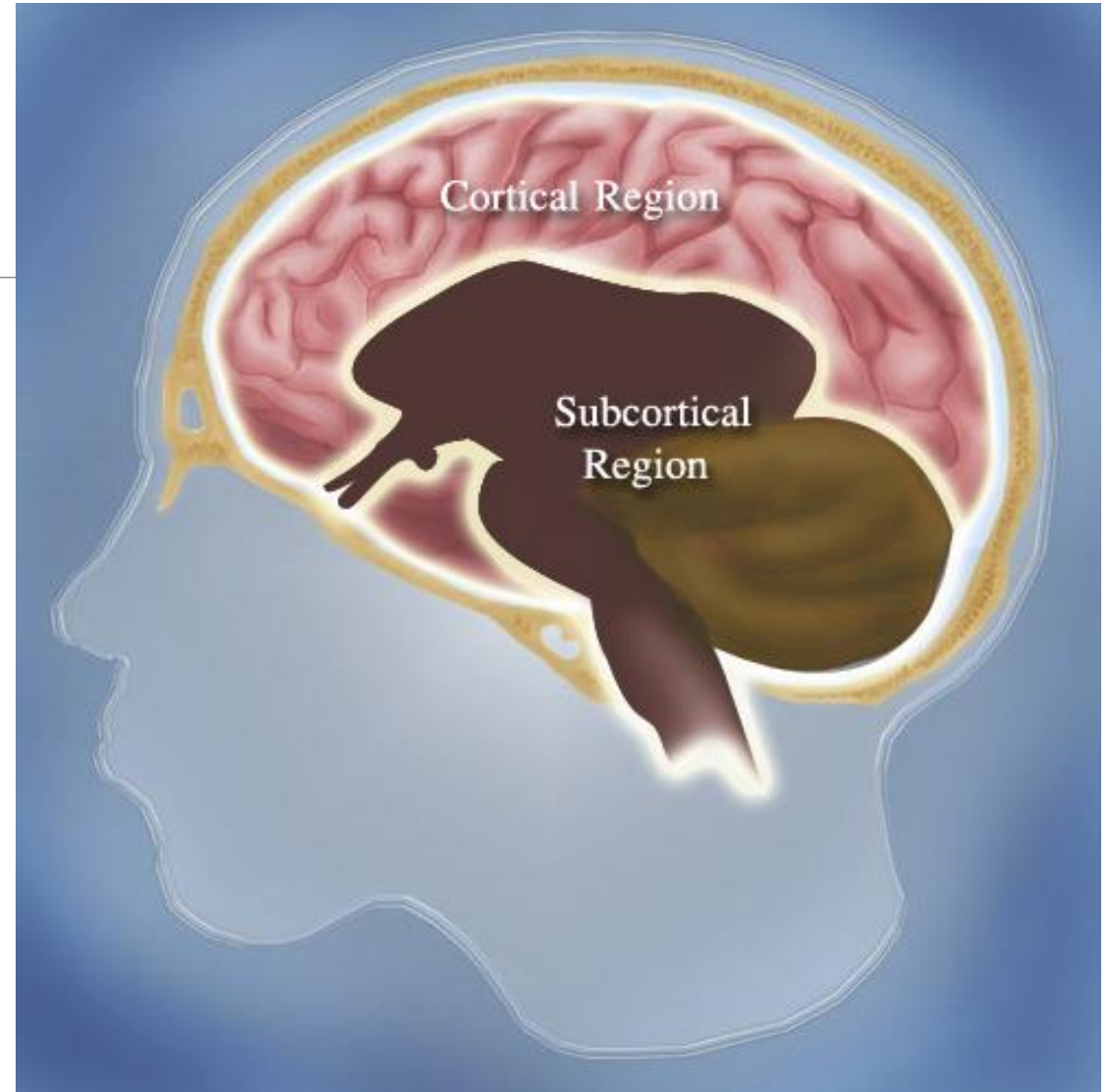


# Brain Regions

---

Subcortical

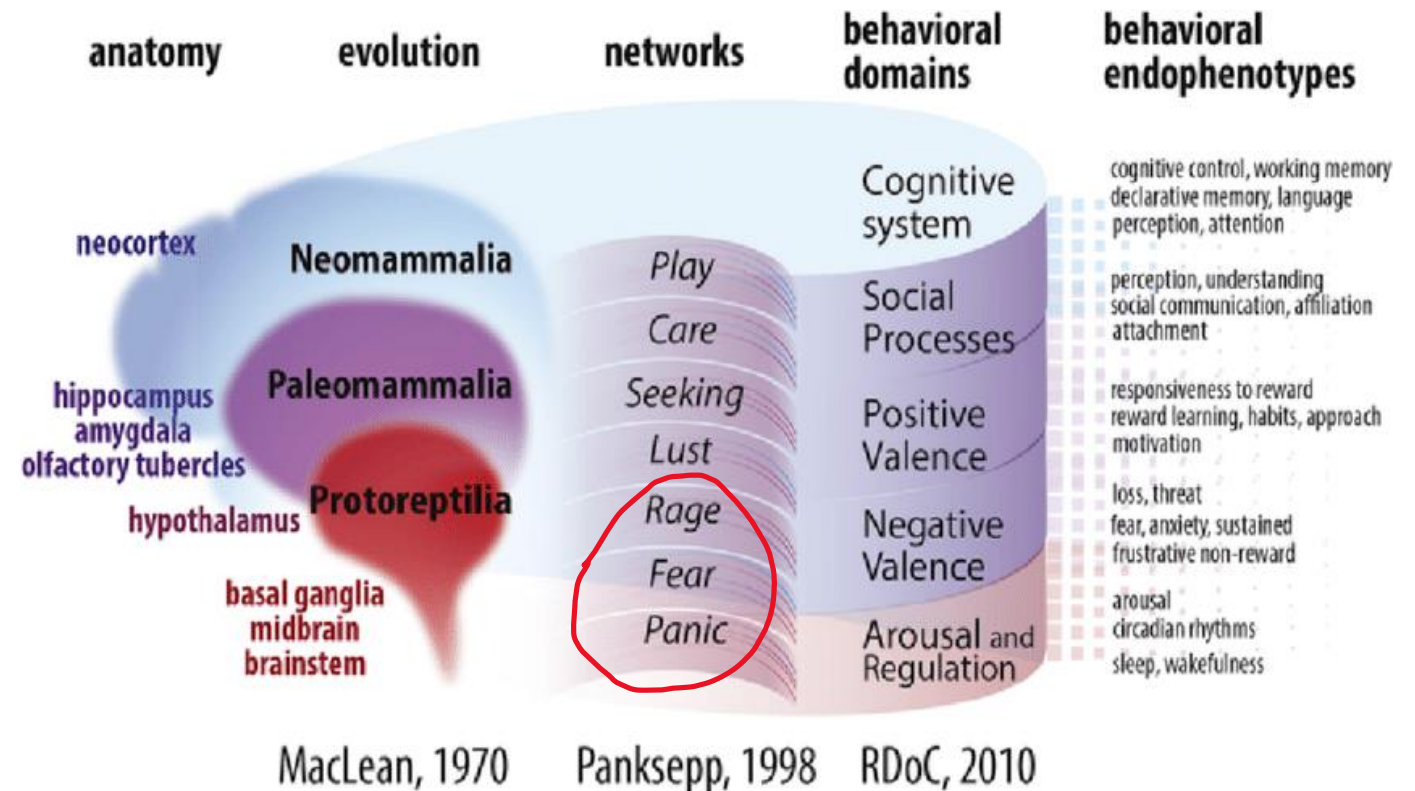
Cortical areas  
(language,  
problem solving, etc.)



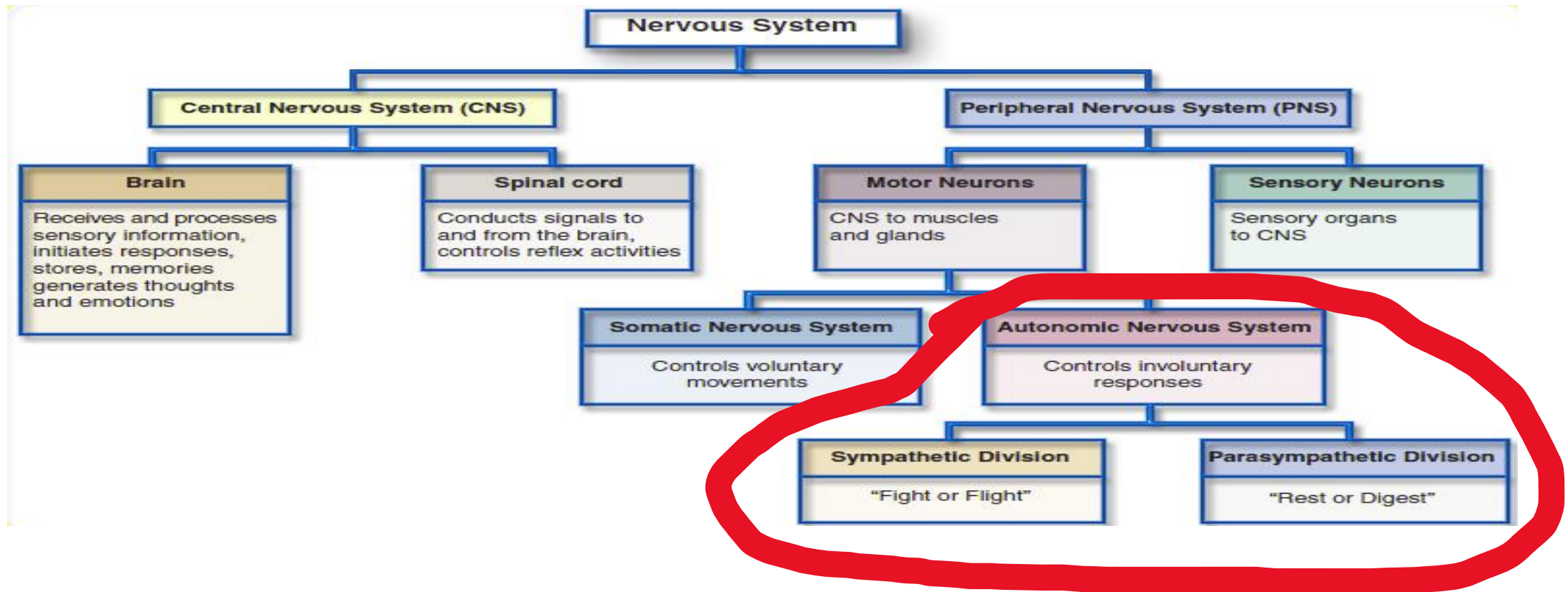
# Affect/ Emotions

Affect began to evolve  
hundreds of millions of years

language and complex social  
behaviours has further  
extended the repertoire of  
'emotions' we make sense of  
but which all are fundamentally  
driven by these basic  
subsystems



# Nervous system organisation





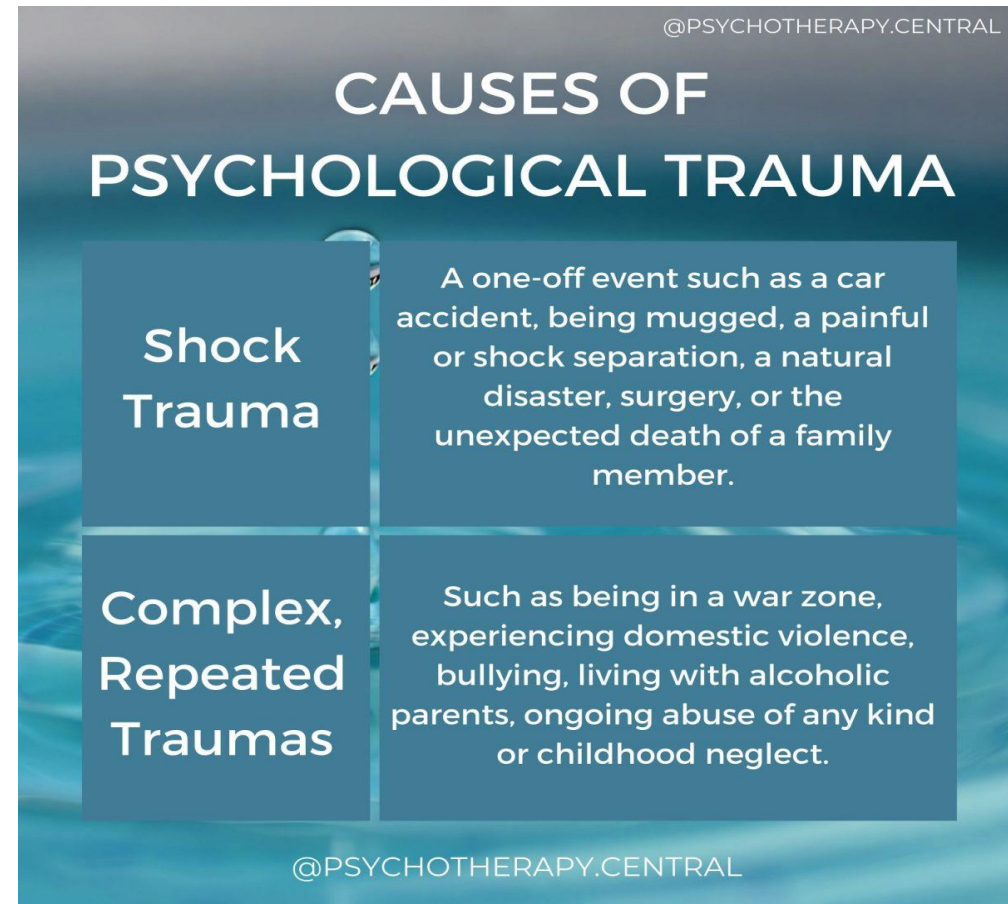
# Trauma:

---

Trauma is more than stress

Not everyone affected in same way

results in processing in a different neurological pathway to normal episodic memory processing:

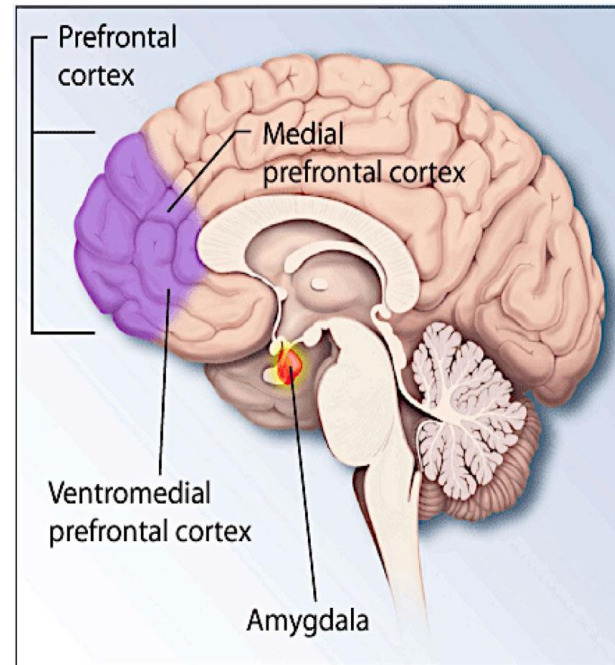


# Trauma:

Particularly involving a the amygdala, activates a cascade of peripheral nervous system activation and hormone release designed to increase chance of survival in times of danger

Memory remains embedded within emotional system and is re-activated by triggers (sounds, sights, smells etc.)

Prefrontal Cortex (PFC) connections with the amygdala are critical for emotion regulation

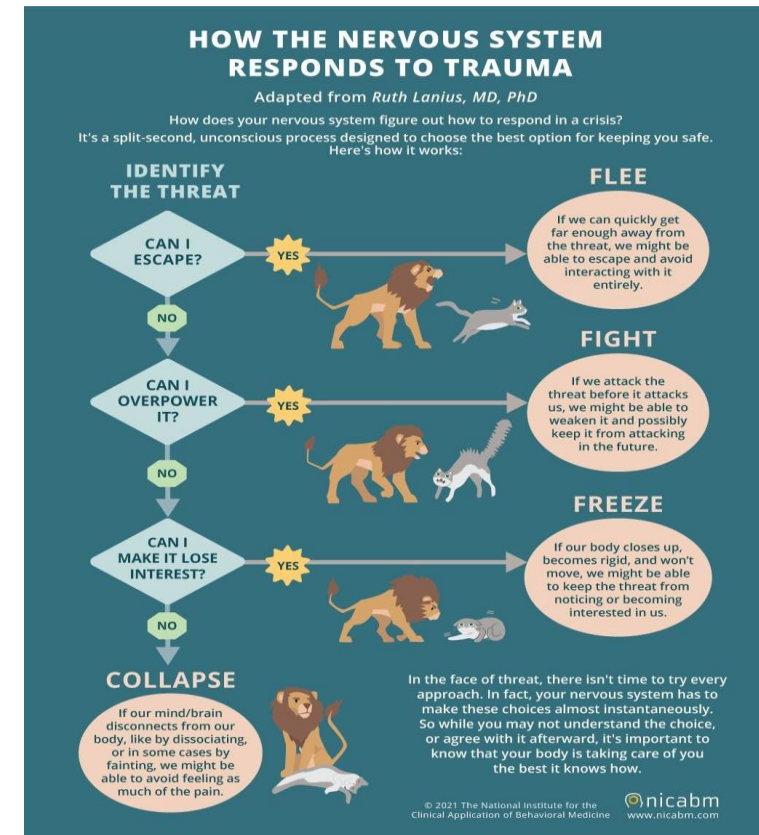
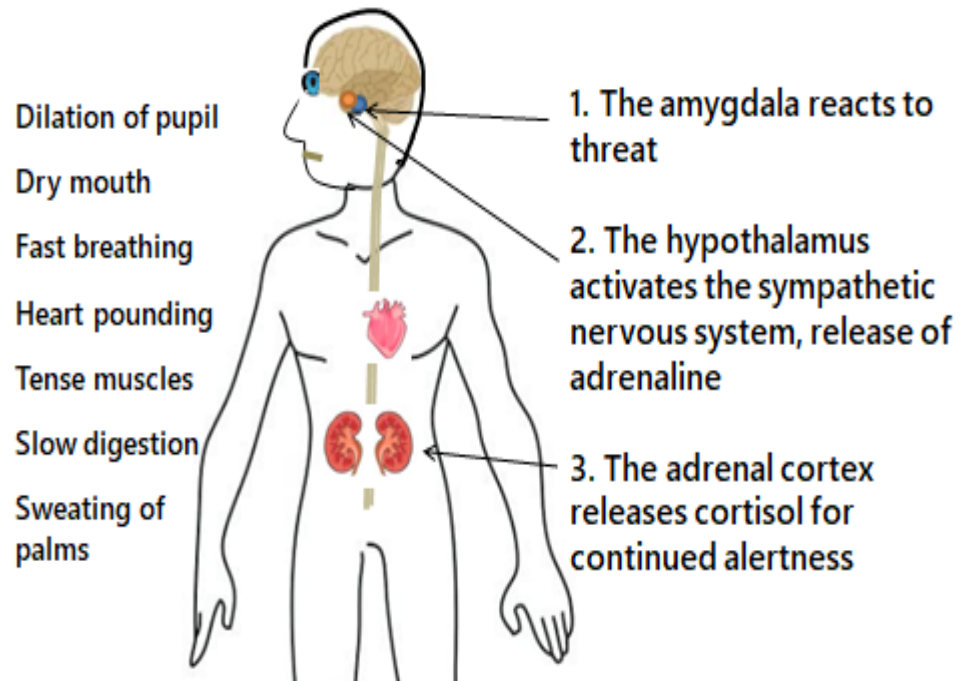


- Amygdala mediates emotional responses – **overactive in PTSD**
- Prefrontal cortex (PFC) regulates amygdala activity- **underactive in PTSD**
- PTSD symptoms may reflect disruption of PFC control over amygdala



# Autonomic nervous system

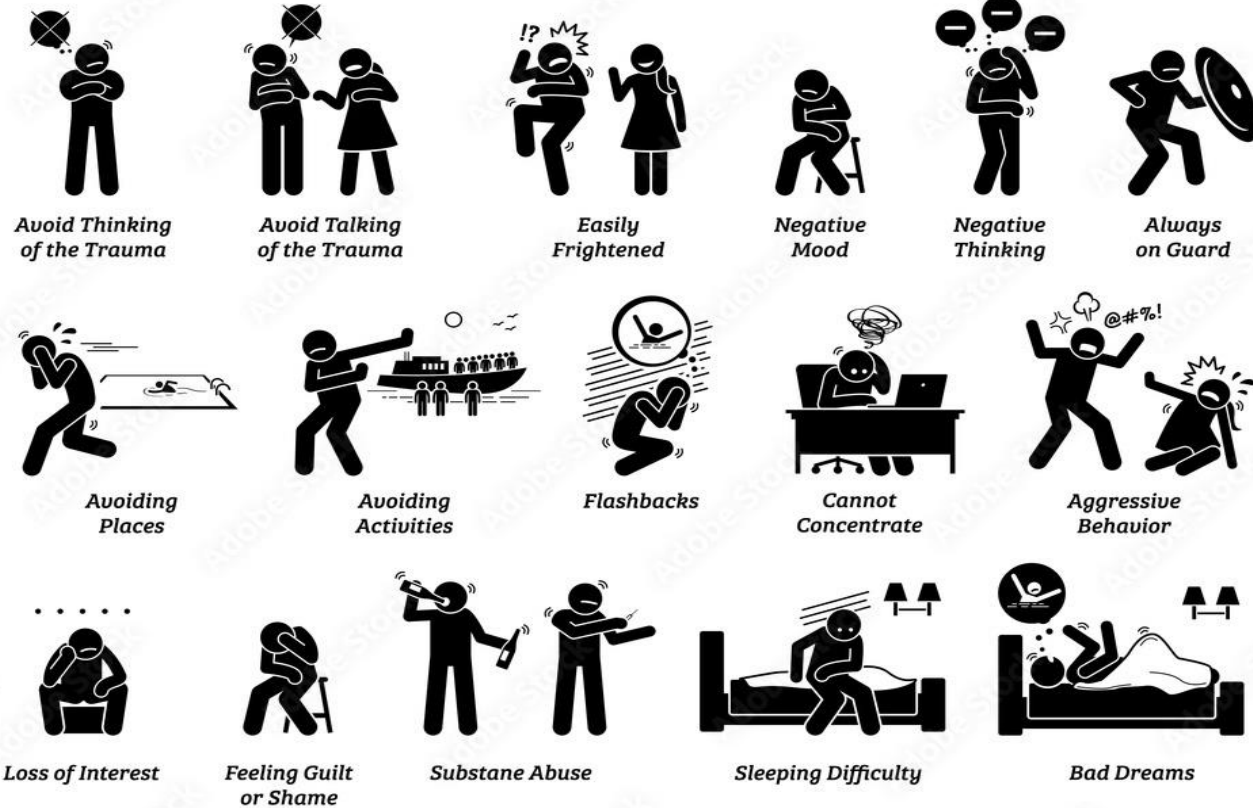
## The fight or flight response



# Symptoms

## Post-Traumatic Stress Disorder (PTSD)

Any of these symptoms sound familiar.....



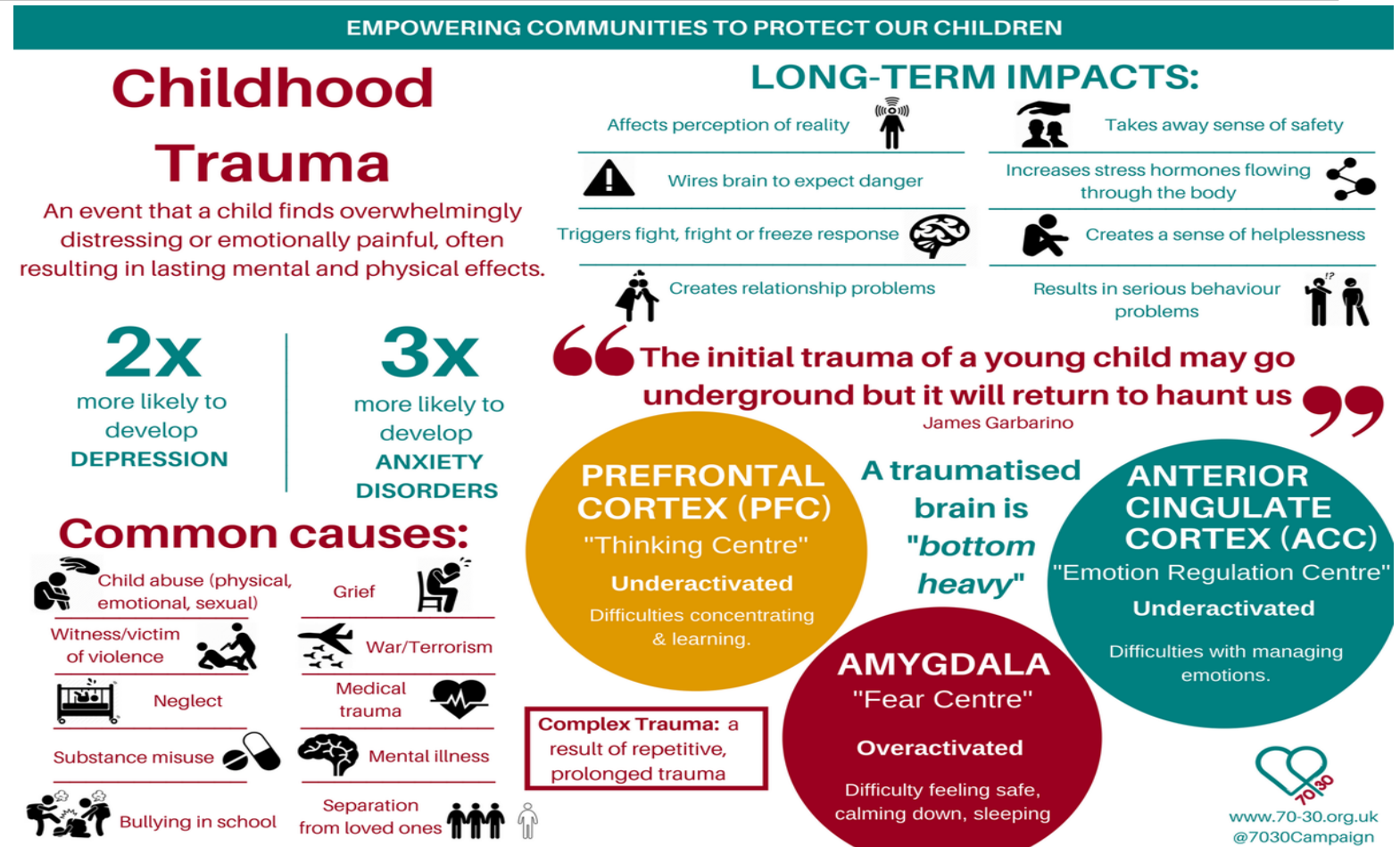
# Childhood Trauma and development

The early development of the brain is particularly vulnerable

Networks are neuronal pathways are being laid down

separation from mother initiates behaviours designed to bring her back (panic/ grief,)

The infant mother relationship is the 1<sup>st</sup> and most significant relationship creating a template for all that follows. Hence the emphasis on secure attachment during this critical phase of development



# TBI and PTSD

---

Studies show up to 36% of TBI survivors have co-morbid PTSD

Pre-injury trauma/ personality – early life experiences

Impact of ‘physical’ trauma on cognitive functioning

And vice versa: Cognitive functioning/ language/processing limitations impact on ability to use therapies and process

Can you have PTSD if no memories?

Impact of Dissociation

# Case study

---

Victor, 59, Polish

Cycle hit by LGV

Compound fracture leading to amputation

Remembers up to the moment of being hit but then blank.

Observed himself being treated at side of road

Irritable & impulsive

Loss of motivation/ fatigue

Headache

Panic attacks

Mild memory, attention & executive impairment

Did Victor have a brain injury?

## Intersection of Traumatic Brain Injury (TBI) and Posttraumatic Stress Disorder (PTSD) Symptoms

### TBI

- Headache
- Light & sound sensitivity
- Nausea/vomiting
- Vision problems
- Dizziness

### Both

- Irritability
- Cognitive deficits
- Sleep disturbance
- Fatigue
- Depression
- Anxiety

### PTSD

- Flashbacks
- Avoidance
- Nightmares
- Re-experiencing



# Treatment

---

1. Trauma informed CBT
2. EMDR
3. Narrative therapy

\*\*\*DEFFINATELY NOT PSYCHOLOGICAL  
COUNSELLING IN THE SHORT PERIOD AFTER THE EVENT\*\*\*\*

BUT...what if no memory of event?

National Institute for Health and Care  
Excellence

Final

## Post-traumatic stress disorder

[D] Evidence reviews for psychological,  
psychosocial and other non-pharmacological  
interventions for the treatment of PTSD in adults

NICE guideline NG116

Evidence reviews

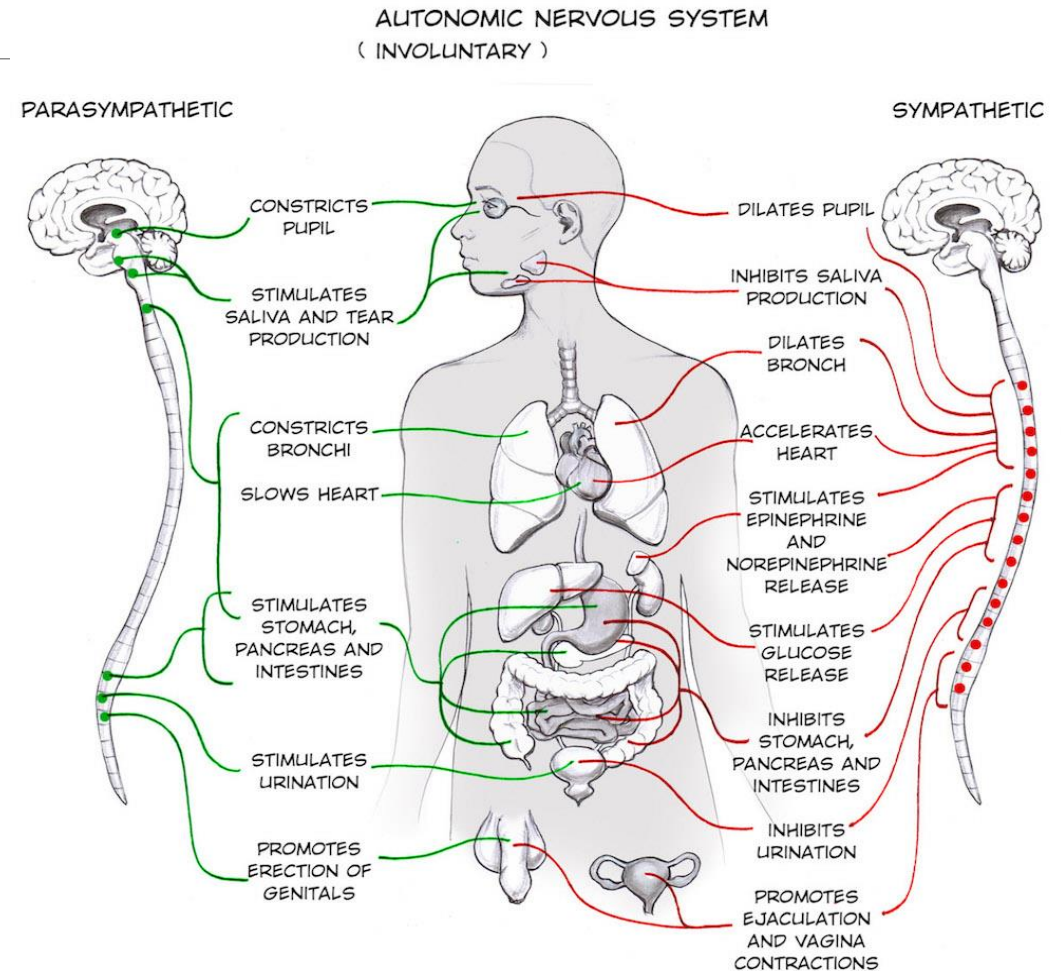
December 2018

Final

These evidence reviews were developed by the  
National Guideline Alliance hosted by the Royal  
College of Obstetricians and Gynaecologists

# Treatment

- ❑ Somatic focussed intervention:
- ❑ Focus on triggers & arousal reduction
- ❑ EMDR – Eye movement desensitisation and reprocessing – bilateral activation
- ❑ EFT/ tapping -
- ❑ Mindful Yoga
- ❑ .....psychedelic assisted therapies



# Things to look out for

---

Sleep problems, nightmares

Acute fear, hopelessness (wanting to die)

Avoidance due to difficult feelings

Arousal, startle response

# Things to try

---

Therapies

Alternative therapies

Activities that promote parasympathetic nervous system

Relaxation

Positive supportive and boundaried relationships

Thank you

