

Neuroscience: The Brain Itself

BSPS: Applications for Athletes

Primitive (Reptilian)

David Grand (2013), The Human Brain (2009), Stephen Porges (2014)

- Unconscious reactions to outside stimuli
- Controls the Autonomic Nervous System (ANS) as well as heart rate, temperature, digestion, etc.
- Roles are instinctual, primal, survival, and body protection
- Initiates fight/flight response first when Amygdala senses fear and moves to freeze if these are unsuccessful

Emotional (Limbic/Mammalian)

David Grand (2013), The Human Brain (2009)

- Conscious reactions to outside stimuli
- Releases hormones dopamine, oxytocin, and serotonin when senses pleasure
- Releases hormones adrenaline and cortisol when senses fear (initiating the fight/flight/freeze response)
- Link between higher level consciousness in the cortex and the lower brainstem, which regulates the body's systems.
- Able to hijack the thinking brain and take control

Thinking (Neocortex)

David Grand (2013)

- Reasoning, logic, resilience – conscious
- Ability to control the primitive and emotional brain if the senses do not perceive an instinctual threat
- Ability to stimulate the Amygdala

Unconscious and Conscious Experience:

The Human Brain (2009), Robert Scaer (2012), Stephen Porges (2014)

- Sensory information is detected by the Thalamus and sent to the Amygdala for quick assessment and action
- Slow and accurate route creates conscious awareness through cortical areas – thinking involved
- Quick and dirty route assesses emotional content and prepares the body for action – no thinking involved
- BSP reconnects the unconscious to conscious by down regulating the Amygdala and accessing the ANS and Limbic systems
- BSP releases the unconscious body experience and the conscious emotional triggers from procedural memory.

Brainspotting (BSP) is a neurobiological tool used to locate, target, process, and release experiences and symptoms held in your brain and body.

David Grand (2013)

Who can it help?

- Professional, elite, amateur, and retired athletes
- Recreational/weekend warriors

What can it help?

Mental:

David Grand (2013), Paige Roberts (2016)

- Performance/anticipatory anxiety
- Performance slumps
- Performance blocks
- Performance choking
- Loss of confidence
- Routine plays in pivotal moments
- Criticisms (coaches, teammates, peers, parents, spectators, self)
- Humiliations (coaches, teammates, peers, parents, spectators, self)
- Poor performance/s
- Loss (family/friend, teammate)
- Difficult practice/game/competition
- Family/home issues
- School/work issues
- Life changes/transitions

Physical (Practices/Games/Competitions):

David Grand (2013), Paige Roberts (2016)

- Over exertion
- Injuries (any) – no matter how minute
- Head injuries (any) or medically diagnosed concussion
- Loss of function/ability
- Nausea before/during performances
- Feeling frozen/unable to move
- Anticipation of pain after injury recovery
- Little to no active recovery
- Little to none or incorrect cooling down
- Little to none or incorrect warming up
- Lack of or no stretching
- Sleep disturbances
- Poor diet
- Physical and psychological act of developing and growing.



Amygdala:

Robert Scaer (2012)

- Primary neuronal centre/generator of arousal/fear for survival
- First to receive sensory messages of threat/danger.
- Sets off the fight/flight response for survival.
- Stores survival-based procedural memories.

Hormones:

Robert Scaer (2012)

Oxytocin:

Hormones released by the Hypothalamus

- Reduces the activity in the Amygdala/cortical areas

Cortisol/Adrenaline

- Helps prepare the body for the stress of danger if it is prolonged by increasing blood sugar, fluid volume, blood pressure, and vigilance.
- Prepare for fight/flight.
- Used to adapt to stressors but if exposure is prolonged, it can shrink the Hippocampus, cause sleep disturbances, and sustained baseline arousal.

Neuroplasticity:

Definition

Norman Doidge (2007)

Neuro is for "Neuron," the nerve cells in our brains and nervous system and **Plastic** is for "changeable, malleable, modifiable.

Principles

David Grand (2013), Robert Scaer (2012), Paige Roberts (2016)

- All learning, whether physical or cognitive is based on this principle.
- Neuroplasticity may be positive (growth of brain maps, birth of new neurons, etc.) or negative (neurons shrink and die, pathways may disconnect).
- Neuropathways need to be implemented immediately to prevent the brain/body from forming a homeostasis and further associated pathways.
- Neuropathways in the brain are like muscles in the body; if injury occurs, you must rehabilitate the brain/body to re-associate and ultimately, re-engage these systems.
- BSP helps decondition the maladaptive neuropathways within the brain and body from frozen primitive survival modes.

How can it help?

David Grand (2013), Paige Roberts (2016)

- It assists an athlete's brain and body in clearing-resolving-healing their past **Mental and Physical Injuries-Traumas-Stressors**.
- It allows the brain and body to **de-condition the mal-adaptive neuropathways** the brain and body creates-conditions when it endures injuries-trauma-surgeries. After the traumatic mental and physical memories are released from the athlete's brain and body, the athlete can completely heal from the trauma.
- As neuroplasticity suggests, once the athlete's brain and body are fully healed, the brain has the capability to **re-associate past positive sports performance neuropathways** previously blocked by the sports trauma. This means the maladaptive neuropathway is no longer used, eventually weakening enough until it no longer exists.
- It clears an athlete's **"what ifs" or "worst case scenarios"** associated with the execution of a dynamic sports performance.
- Like personally experienced traumas, when an athlete sees another athlete experience an injury-crash or any other negative outcome during competition, they experience **secondary trauma, creating maladaptive neuropathways which can be cleared with BSP**.
- Performance Expansion helps to mentally condition a **"no mind"** eye gaze position to assist an athlete in getting into the **"zone"** for sports games/competitions.
- This process allows the athlete to condition their best or positive sports performance memory so they do not overthink or become anxious and **simply execute their sports performance with ease**, from the "no mind" zone.

To learn more, schedule a presentation, and/or an initial assessment, please contact:

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