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The compelling role the field of psychosomatics
and trauma has in the study of concussions

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Intro

Not all blows to the head cause a concussion. But then why do some people suffer greatly from a seemingly small bump or jolt, and others who experience a great impact to their head or body seem to not be affected in any substantial way? The study of concussions seems like a mystery at best; and even the medical system has difficulty defining exactly what it is, diagnosing it, and treating it.

Some people who sustain a concussion feel fine after brain rest and are back to normal within a few weeks; for others, they don't feel like themselves for months or even years after. For many, life has been turned upside down, and the affects can be experienced through a wide array of seemingly chaotic symptoms; such as changes in how they interact with others and the world they live in, in their job, career, and family. The most painful is the fractured relationship they have with themselves.

The way that concussions are diagnosed and treated in the medical system are less than satisfactory to survivors as it addresses some of the symptoms but not actually the most painful and mysterious aspects. The study of trauma and psychosomatics has very compelling reasons why people who have sustained a concussion suffer with the symptoms that they do. In the next paragraphs I will be discussing how concussions are looked at in the traditional medical system and will demonstrate how show most aspects of a concussion may actually be a trauma response.

What is a Concussion?

In the medical system, concussions are defined as a mild traumatic brain injury with or without a loss of consciousness or a direct blow to the head. Some concussions are associated with bleeding and axonal damage but many are not. In fact in most cases physical damage cannot be seen with traditional imaging such as CT scans or MRI. Within the medical system the definition of a concussion varies widely and changes constantly. Concussions traditionally were defined as structural damage that would cause bruising and bleeding of the brain but would structurally heal within a few months. Since nothing can be seen with normal imaging, the medical institutions now say that there does not need to be bruising, bleeding, or structural damage to the brain in order to diagnose a concussion. Many medical institutions state that a concussion or mild traumatic brain injury results in functional changes to the brain, but not necessarily structural damage; and that symptoms can develop over a period of a few days to a few months. If concussions result in functional changes to the brain, why then would symptoms become apparent and worsen in severity over time?

Quantifiable

Concussions are very difficult to quantify since they can not be seen on CT scans or MRI. The only thing that can quantify a concussion is a scale that looks at how many symptoms a person has out of the total listed. If a patient has a certain number of symptoms to meet the threshold then a diagnosis is made. One of the most widely used scales is the Glasgow Coma Scale; which positively diagnoses a concussion if the patient score 13/15.

Non Quantifiable

To a concussion survivor the tests are less than satisfactory, as the tests used to determine a concussion and the ways used to treat them are vague and varied at best. The medical system says that within a few months patients should be asymptomatic and that the brain should be physically healed. But for many people, every aspect of their life has been affected and they don't feel like themselves for months or even years after the initial injury.

In this Paper, I will be discussing the non quantifiable aspects of a concussion and introducing how the field of trauma and psychosomatics have very strong and compelling reasons on why concussion survivors experience what they do. I will be presenting how concussions may really be a disruption of the felt sense (interoception, exteroception and proprioception) and what roles shock trauma, dissociation, and hypervigilancy play into the symptoms of concussions.

Dissociation

When an event overwhelms the body so greatly, it has been said that the soul or essence of the being separates from the body. In the animal world this can be seen when an animal is facing death and seemingly surrenders to its fate in a strange out of character way. In the short term, dissociation is an amazing phenomena in the body that protects the organism from "feeling" pain. Partially separated from the felt sense, the organism can face death without experiencing the weight of the situation or the gravity of the pain. This was enlisted as a primitive threat response, but in traumatic events this can stay with a person's long after the event itself has been resolved. For someone who has sustained a concussion, they may be able to know that there are bizarre things happening to their body but not be able to feel the gravity of the experience... its like they are going through it in a haze as if numb to the pain.

People who live in a partially dissociated state can have wide range of symptoms. Dissociation can't be defined by any certain set of symptoms as it changes with every case. Unlike the animal facing death, many people can live a seemingly "normal" life outwardly, but on the inside they don't feel themselves; like they can't recognize themselves. For people suffering from a concussion, it can be very difficult to pin point what has changed, but something in the core of them has shifted. Dissociation is the partial disconnection or the dulled sense of the systems that make up the human being and how they interact with the inner and outer environment; including the felt sense, interoception, exteroception, and proprioception. The chaotic and unrecognizable sensations that people experience following a concussion can enlist much fear in the individual and cause them to stay separated from their body. The

way people are in the outer environment mirrors what is happening on the inside; the partially fractured relationship with self also translates to a feeling of separation with relationships. Those who have suffered from concussions often talk of being anxious in crowds and in social settings and have a difficult time connecting within relationships and that life often doesn't have the joy or sensuality that it once did.

When there is a partial disconnection from the felt sense, people can suffer greatly from the feeling of not recognizing oneself, not being able to trust themselves, feeling like they've lost their place in the world, difficulty recalling words and information experiencing chaotic thoughts and bizarre physical symptoms, absent mindedness or floating in space. Feeling disconnected from yourself and the world you live in is a very lonely, painful and confusing existence and each individual has a different experience.

Felt Sense

The felt sense is the way that human experience and perceive the world we live in; including the inner environment and outer environment. It encompasses perception of the inner bodily environment (interoception) the outer environment (exteroception) and the perception of where our body and limbs are in space (proprioception.) American Philosopher Eugene Gendlin developed the word and concept "Felt Sense" and described how "the felt sense is not a mental experience but a physical one." The felt sense sits halfway between the concepts of interoception and exteroception.... it is the qualities about self. Can one feel the outside of their body (temperature, the wind on your skin, sun shining on your face) the internal environment (do the sensations in the gut let the person know of hunger or anxiety; can one feel their breath from their lungs to the gut) and proprioception (feeling the solid surface for balance and coordination, and awareness of where your limbs are in space). Proprioception is a vital aspect of balance and coordination of movement.

The felt Sense is also a "bodily awareness of a situation or event- an internal aura that encompasses everything you feel and know about the given subject at a given time- encompasses and communicates it to you all at once rather than detail by detail"- Eugene Gendlin. It informs the body if the outer environment is safe or dangerous, and communicates this to the body through complex sensory pathways. The degree in which one can perceive these messages through sensations is determined by our level of awareness of the felt sense. It gives the ability for us to feel strong emotions such as joy, happiness, excitement, love, fear, anger, shame and guilt; the emotions that are vital for the human experience. When the felt sense is dulled or partially disconnected (which I propose is a huge component of concussions) there is a detrimental affect on the individual and their human experience. With a reduced visceral awareness of the felt sense, people may get into more dangerous situations because the messages from the outer environment may be dulled and misinterpreted by the body in reference to the safety of the organism. A very painful and lonely element of the disruption of the felt

sense for a concussion survivor is living a life with a diminished or dulled sense of joy, happiness, excitement, sensuality, anger, sadness and overall emotion. Living life with a dulled awareness of the felt sense is similar to only being able to see black and white where once there was color. “Living” can become more of an “existence” instead of experiential.

Proprioception

Specialized receptors located on the bottom of the feet, in muscles and joints and located throughout the body pick up stimuli from the surface that the body is on. This informs the body of what surface that the feet are on, what the sit bones are on, and where your limbs are in space. Proprioception is the ability to perceive how the surface informs the body (if the surface is solid or shifting, and if your weight is distributed evenly) and to know where the limbs are in space. Without thinking about it, I know that my left hand is pronated and my left arm is closely by my side; whereas my right arm is by my hip and in internal rotation.

To feel ones feet on the floor informs the body of its horizon; it gives the body a reference point. Without this the body doesn't know which way is up or down, where its foundation is or where the limbs are in space. The ability to sense the floor and where your limbs where the limbs in space is necessary for coordination of movements, for fine and gross motor skills, and for the vestibular system as it is essential for balance and coordination. Proprioception provides a reference point that many systems can organize around. Similar to building a house, a solid foundation is absolutely critical for the whole structure to be level and solid. If the foundation is not level, it is very difficult to build a strong and square structure. No matter how much compensation, the structure will not be sturdy if the foundation is not. Similarly with concussions not being able to “sense” or “feel” the floor robs the body from having a solid base for stimulus to be organized around. Strong feelings of vertigo, floating, and nausea often result; and may translate to unsteady gate, balance issues, clumsiness, and the feelings of being unsure or unsteady in life.

Interoception

Have you every had that feeling in the pit of your stomach? You know that one that sits heavy like a ton of bricks and informs you that the place where you're walking may not be the safest? What informed you that you needed to leave? This “6thsense” or “gut” sense is part of your Enteric Nervous System in your viscera. The more mysterious and a very interesting aspect of the 6thsense allows humans to sense things about people without having had a personal interaction. It also allows one to have a deeper sense or a gut sense when making decisions. In a more tangible sense, interoception (the awareness of the inner environment) allows the individual to sense when their stomach is full or empty, or when to use the washroom. This also provides the ability to sense if the gut and chest feel expanded (which lends to feelings of safety and security), or if tight and constricted; which will help to inform us the organism of potential danger. Having the awareness of the internal environment allows a person to sense the subtle

shifts on the “inside” so that the body can respond to each situation correctly. Having this internal awareness and connection with self on a basic level is crucial for safety and allows the organism to respond to the shifts of the external environment. In the book *The Polyvagal Theory*, author Stephen Porges talks about how there are sensors located on the internal organs and sensory pathways that send information of the internal visceral environment to the brain. The brain sorts this information out and sends signals directly to the organs to make changes directly to the viscera. If there is a need for motor involvement as in a fight or flight situation, the sensory information can be sent to the limbs via sensory pathways.

A partial disconnection and separation with the internal environment causes individuals to have a more difficult time with decision making. Even “simple” decisions like what to eat can become a huge decision as they have to think about everything detail by detail rather than having a deeper sense or gut sense helping to inform the decision. Things become a lot more confusing when this 6th sense is duller. Even sensations such as hunger can be misinterpreted for fear or anxiety because it becomes difficult to differentiate the subtle differences. In my opinion the most painful aspect is the feeling of separation for “self” and the core of the individual. Very often this translates to feelings of being lost or a loss of directing and being separated from yourself and the people around you.

Exteroception

Awareness of the external environment allows a person to see in their peripheral vision, interact with people, sense external temperature changes, and any other shifts in the environment. Receptors on the outside of the body sense changes in the outside environment. One example of exteroception is a cool breeze blowing that may cause the hairs on the arm to stand up or cause shivering. This awareness informs the body of shifts and changes of the external. It is not necessarily a response to a specific stimulus but more how the person perceives the overall landscape of the external. If these shifts are strong enough, the body may respond internally and viscerally if the system senses a threat.

Because exteroception has to do with the individual's “awareness” of the environment and not necessarily reality; a person with an inaccurate sense of the external can perceive a once “safe” environment as a threat, or not perceive a dangerous or threatening situation when there is one. I suggest that the receptors have been dysregulated following the concussion and may respond in a dulled way (not sensing danger) or in a hyperactive way (sensing danger when the individual is with “safe” people and in a safe environment). Exteroception also has to do with the people and relationships that are in an individual's life. Many people after having sustained a concussion feel disconnected from their family and friends. I propose that this has a large part to do with the dulled and disrupted awareness of the outer world, as people and relationships make up a large part of the external environment. Once close and meaningful relationships can feel distant and dulled and be met with apprehension, anxiety and lack of strong connection.

Shock Trauma and Energy Cysts

One phenomena that is difficult to explain in mild traumatic brain injuries is the development of symptoms and an increase of the severity of symptoms over time. Many of the symptoms that people experience after having sustained a concussion doesn't even have to do with the brain at all, but is a response to the shock trauma. Bodily sensations such as anxiety, uneasiness, and nausea in the gut; shaking or trembling; pain that moves around; or constriction and tightness in and around nerve bundles such as under the xyphoid process and behind the heart are experienced. A possible explanation is that the sheer energy that the blow took on the body or head, hasn't dissipated and has been trapped in the body. Because this energy is foreign, the body walls it off as to not disrupt the whole system. This is called an Energy Cyst as described by John Upledger. If this extra energy was to dissipate through the whole body, it would throw off all the regulations mechanisms and potentially overwhelm the system so greatly that it would cause the organism to die. Shock trauma and energy cysts are a major possible reason why there is such a difference of symptoms and body regions that are affected from person to person including physical, behavioural and psychosomatic symptoms.

One individual suffering from a concussion may suffer from a lot of headaches and pain in their head, another person may feel a lot of anxiety, nausea their stomach and constriction in their gut; another may feel more tightness and pain around the heart and chest area; or chaotic and disturbing thoughts. Energy cysts in the body is similar to a big rock being thrown into the middle of the river. The flow of the current now has a big obstacle to go around; depending on how the water flowed before in the river, how big the rock is, and the location of it determines how the current will flow after. Similarly how a person fares after a concussion depends on many factors; including how their body, mental, and emotional state was before the injury; where the force or blow went into the body, and how much energy was forced into the body. The residual localized energy that has been introduced into the patients body by this external force is contained in an area but their it reaks havoc causes a wide array of chaotic symptoms. This can evoke much fear as the sensations experienced in the body feel very foreign, very disorganized, and seems to have no connection to the head injury itself.

Hypervigilancy and Hyperarousal

Those who have sustained a mild traumatic brain injury experience a wide array of anxiety driven symptoms such as emotional and physical agitation, shaking, anxiety, racing thoughts, difficulty sleeping, increased heart rate and breathing rate. Muscles are often sore and stiff, eyes are wide and staring off into space, the individual is often easily started and experiences anxiety and panic attacks. Pain and irritability are also characteristics. The body is in a constant reaction state as the Nervous

System has gathered all of its resources to deal with the threat. When this response isn't deactivated after the threat has gone, the body may stay in this constant state of hyperarousal. This may be one reason why people may feel such a degree of fatigue after the initial trauma because the organism has focused all its resources for self protection. Hyper-focus on the outer environmental stimulus and potential danger is a self preservation response. Because humans are never in control of the outer environment, the constant awareness of potential danger further perpetuates the feeling of fear and being out of control.

Conclusion

In conclusion, even though the study of concussions seems quite complicated and a mystery at best, the study of trauma and psychosomatics has very compelling thoughts on why some people who have sustained a blow to the head or the body don't seem have any real lasting residual affects and why some people suffer greatly afterwards. As discussed in this paper, I propose that what people suffer from is actually a result of dissociation, a disruption of the felt sense (proprioception, interoception and exteroception), hypervigilancy, shock trauma and energy cysts; all of which are trauma reactions. I propose that the field of psychosomatics and trauma has a very rightful and important place in the study of mild traumatic brain injuries as it helps to explain the most mysterious and least talked about aspects of concussions.

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