Bio-physiology and DR

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This paper was prepared and settled jointly by the members of ADRAC.

Studies of the human response to conflict have confirmed that at the level of our body the response is the same as the human response to stress. This means, in managing conflict, it is useful to explore the body of knowledge that has developed concerning stress and its management. Below is an overview of the bio-physiology of conflict and some suggestions about the kind of contributions that might be useful to map out what is available in this area.

> To understand the stress response we must possess a fundamental knowledge not only of psychology but also of physiology as well.
>
> George Everly (as quoted in Jones & Bartlett)

What is the relationship between stress and conflict?

Stress, is 'our body's way of responding to adverse or demanding circumstances'. Conflict is one such adverse or demanding circumstance. It is important to understand how the body reacts to stress and its short, medium and long term impacts to develop ways to manage it.

Summary of the bio-physiology

There are 3 parts of the brain that are involved in the stress reaction. The primary part of the brain that is relevant is the autonomic nervous system comprising the sympathetic and parasympathetic nervous systems. The sympathetic nervous system is responsible for the fight or flight (or freeze)[1] response and the parasympathetic nervous system is responsible for the 'rest and digest' response that calms the body and brings homeostasis.

Hormones also influence the brain. In fight flight and freeze, because the hormones are designed to combat physical threat, they prime for short term thinking and negative inferences eg in a dispute situation a statement that is ambiguous is likely to be heard as a threat or a negative.

Rest Digest

The parasympathetic drive ‘rest and digest’ is responsible for energy conservation and relaxation. It is during this period that the body cells regenerate. This is a good state for strategic and future focussed thinking.

Parasympathetic (rest and digest) and sympathetic pathways (fight or flight) are mutually exclusive in that they cannot dominate activities simultaneously. They are like the brake and accelerator of a car: fight or flight is the accelerator and rest and digest is the brake. The switch from sympathetic (fight or flight) to parasympathetic (rest or digest) occurs through the tenth cranial nerve also known as the vagus nerve.

Brain division of labour

The brain is divided into three major parts or levels. The vegetative level,[2] the middle or second portion is the limbic system[3] and the neocortical level which is the highest and most sophisticated level of the brain which deals with conscious thought and reasoning.

Current brain theory suggests conscious thought can influence emotional response. It also suggests conscious thought can control involuntary vegetative functions such as heart rate, ventilation and even the flow of blood. This means in theory that we can use our voluntary conscious mind to control some of the physical effects of stress that cause difficulty. This is done through direct training of the vagus nerve.[4]

Implication for decision-making and dispute resolution

The implications for decision-making and participating in dispute resolution processes are still being explored. Theoretically, participants can be assisted to recognise the impacts of

stress and provided with tools to override the changes to the brain to assist them to make effective decisions.

The bio-physiology of stress also has relevance to the design of resolution processes that require participant decision-making. For example, it would suggest that shorter regular sessions are beneficial in disputes with high emotion. A long intense session is likely to increase stress levels and raise hormone levels with a corresponding decrease in long-term thinking. It also provides another lens for thinking about issues such as the benefits and timing of *joint v private* sessions, the role of venting in dispute processes and the benefits of *informal v formal* processes.

Summary

- There is a biological basis for stress.
- The mechanisms that keep us safe from physical threat do not work as well with mental threats. They result in an increase in brain heuristics and a negative bias.
- The conscious brain can be used to override and ameliorate the reactions to stress, allowing physical and mental recovery and the perspective to make effective decisions.
- This gives a context for thinking about the tools for dispute resolution and how best to ensure their effectiveness. It also supports the use of assistance such as conflict coaching as an intervention in preparing people for resolution.

Future Focussed Comments

Various disciplines associated with conflict coaching, system design and group decision-making are starting to reflect on the processes used to ensure that they are responsive to the bio-physiological needs of the human subjects. A number of transformative projects in schools such as circles and mindfulness have already taken up the challenge of dealing with school-ground conflict and enabling young people to build conflict competence through reflective practice which is formulated around bio-physiological cues.

The growing data on the effect on the brain of the bio-physiology also connects movements such as mindfulness, and disciplines such as yoga, coaching and psychology in a more

direct and evidence based way, with that of dispute resolution and decision-making in groups.

Data that could be collated

It would be useful to understand in a comprehensive way how other disciplines, movements and professions are using the growing data on the physiology of stress to contribute towards supporting effective decision-making, conflict resolution and dispute resolution.

Knowledge is power

Considering the way ADR sessions could be structured to maximise their effectiveness, testing this by monitoring people's biological responses would be useful. Much might be learned from how this differs (if at all) in disputes which are commercial in nature and those that are personal such as family and workplace conflict.

Controlled studies which map the correlation between affect and outcome could provide measurable data and, potentially, a crucial component in showing the benefits of using ADR to empower participation and decision-making - and perhaps to reduce stress.

1. Fight, Flight or Freeze - Through the release of hormones a series of events occurs that prepares the body for rapid change and physical movement. This is known as the flight or fight response. The fight or flight response reactions include the acceleration of heart rate, the increase in myocardial contraction, constriction of arteries, dilation of pupils, increase need to breathe, reduction of digestive activity, release of glucose from the liver and a number of other functions preparing the body to fight or flee.
2. The lowest level of brain consciousness. This contains the pathway's automatic pilot control centres of the brain. This has the responsibility for vital organs and is the most primitive section of the human brain.
3. The emotional control centre which includes the amygdala which is thought to be responsible for ensuring the correct hormones are released in response to emotional cues.
4. Moving from fight and flight to rest and digest, happens through the control of the vagus nerve. Control can be mastered through deep rhythmic breathing. This rewinds the effects of the sympathetic nervous system. The speed and ease with which a person moves from fight and flight to rest and digest can be increased by practising exercising that degree of control over the automatic parts of the brain.