

Physiological stress - the martian and life of pi (by jade matthews)

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Under physiological stress the human body goes through a series of homeostatic processes depending on the origin of stress. The human body does this to ensure that it is healthy and functional or in others word, it insures its survival. The term ' survival of the fittest' is a good example for the explanation of homeostatic processes. An example of homeostatic processes is when you lose weight by starvation, losing weight because you are starving yourself causes a decrease in lean muscle mass as the body during starvation eats the muscle and fat that is already on your body to survive. Lean body mass includes, bones, muscle and organs. The overall mass of each of these parts of the body decreases when you starving yourself. Which causes your body to become weaker and for you to be prone to injuries. In the two movies ' The Martian' and " Life of Pi" the protagonist of the stories goes through a series of stressful situations that put pressure on them physically and mentally. Through their experiences their body changes and reacts to survive. What forms of homeostasis does the protagonist of both movies go through whilst under high levels of physiological stress.

In ' The Martian' we follow the character of Mark Watney who is stranded on the planet mars on his own. In the beginning he is impaled by a rod connected to a satellite. The first form of homeostasis his body takes was when he first wakes up from being unconscious. His body suit was losing oxygen due to technical difficulties, which caused his body to hyperventilate and caused him to have irregular breathing as his body tries to compensate for the lack of oxygen going through his system. Following this, the fact that he had the lack of oxygen in his systems, means that he was weak and

disoriented. This was the case as he had to walk to the airlock to remove the rod that he was impaled with. His body began to sweat from the pain the rod lodged in his stomach was giving him. Pain triggers the hormones catecholamines, one of which is most commonly known as adrenaline. Catecholamines have receptors all over the body that cause a response commonly known as fight or flight. Mark Watney was tasked with the stress to remove the rod that was impaled in his abdomen. After he removed it he still had to retrieve the piece that broke off, which was still inside him. This put himself under a lot of physiological stress as he knew he had to remove it or it would have caused more problems, such as metal poisoning. So, the response of 'fight' was triggering to remove it, adrenaline circulated through his body to help him to remove the piece of metal. After removing the metal piece Watney's body becomes pale and he is shown to be sweating. This was his body's response to the overwhelming pain that was caused by removing the metal piece. The complexion of his skin was caused by the lack of blood flow as he held his breath while removing the metal piece, which stops the circulation of oxygen to the rest of the body, but also because of the blood coming from the wound in his abdomen. Later Watney is forced to ration food to survive, but because of unplanned problems such as his garden being destroyed by mars atmospheric pressure his food supplies decrease even more. He results to eating half a potato a day or even less. This would put his body under high levels of stress as the body doesn't have the nutrients it needs to survive. So, then it will start burning the fat and muscle on Watney's body resulting in him becoming thin and weak. This is clear in the ending when Watney is suiting up to finally leave mars. He's body is thin

and bony as his body attacked all the muscle and fat cells. From the look of his body, you can also see that there is a discoloration in his skin and there are sores covering parts. It is clear further along that he had lost a significant amount of body weight as his space suit fits him poorly. It's loose in places where it fit in the beginning and his face is slimmer. He develops a serious case of undernutrition, because he lacks the acquired amount of food to give his body nutrients. Watney seems to have scurvy as his teeth are weirdly colored and his body seems to have sores - he also has dry lips. Scurvy is caused by the lack of vitamin C in a person's body. It slows down the healing process in the body and causes sores and lips to peel.

In 'Life of Pi' we follow the story of an Indian boy who survives a shipwreck and drifts on the ocean accompanied by a Bengal tiger. From the beginning Piscine is exposed to extreme sunlight and rough seas. As the story continues Piscine finds food, tries to control Richard Parker (The tiger) and tries to survive. After a long period of time you begin to notice that Piscine's lips are dry and peeling and from the opening of the sides of his shirt you can see his ribs appearing as he has lost weight from the lack of food. This is because when the body lacks food it starts to eat the muscle and fat that is already present on the body as explained on the compositions of lean body mass, which is why when people starve themselves they become skinner and lack strength. This is what happens for a while, Piscine continues to lose weight. Almost to the brink of exhaustion because of the lack of energy from no food, Piscine wakes up to find himself on an island. This is an hallucination of an island with hundreds of meerkats with extreme environmental

conditions such as the water pools that were acidic during the night and clear and swimmable during the day. The story of being stranded on a boat with a Bengal tiger is an amazing tale, but is it the truth. Piscine goes through a lot of physiological stress throughout being stranded in the middle of the sea, and continuously starving himself from the lack of food. I believe the whole experience is his mind's way of protecting what happened from himself. Piscine goes through a lot while being in the ocean and his way of coping with the things that happened were to imagine the people that were actually with him as animals: his mother being the orangutan, the zebra being an injured sailor, the hyena being the cook and the tiger being him. The story was Piscine's way of forgetting the death of his mother before his eyes and him killing the cook.

Under physiological stress the human body goes through a series of homeostatic processes depending on the origin of stress. The human body does this to ensure that it is healthy and functional or in other words, it insures its survival. This is shown in the two movies as both are in unavoidable situations in which they have to starve themselves to survive long enough, which causes them to lose weight. The protagonists of the two movies 'The Martian' and 'Life of Pi' go through a series of stressful situations such as starvation that put pressure on them physically and mentally.