

Activity 5.1.3: Hurts So Good

Introduction

Unfortunately, we have all most likely felt pain. From small aches to immeasurable agony, pain is a part of life. Feeling pain is a result of the coordinated action of pain receptors throughout the body and the nervous system. Signals make their way from the outside to the inside to register damage and injury. But what would life be like if you could feel no pain? Your first reaction might be one of excitement or joy, but when you really stop and think about it, pain is vital to our survival. How do these aches and pains actually protect the human body?

In this activity, you will investigate the physiology of pain in the human body. You will view a video clip that illustrates how and why your body allows you to feel pain, as well as how and why your body can actually keep you from feeling pain. In what ways does pain protect the amazing human? How would the body be affected if it never registered a single ounce of pain?

Equipment

* Computer with Internet access
* Discovery Channel *Human Body: Pushing the Limits* DVD

Procedure

1. Watch the *Pain is Vital* video clip presented by your teacher.
2. Use information presented in the video clip to answer the following questions. You may need to view the clip more than once.

* Why did Amy’s body want to keep her from feeling pain after her injury?
* Briefly explain how pain is interpreted by the brain.
* Why does the signal of pain move slower than other signals in the body? Why does the nervous system allow this lag time, and how does this delay relate to protection of the human?
* What are endorphins and how do these chemicals alter the communication of pain in the body?
* Through brain mapping, what have scientists learned about the processing of pain in the brain?
* Why does Amy finally feel pain once she has been rescued?
* Explain the role inflammation plays in protecting the body.
* Compare the role of pain in each of the video cases. Why did the body want to keep Amy from feeling pain, but want David to feel pain?

1. Some individuals are born with a rare genetic disorder called Congenital Insensitivity to Pain with Anhidrosis (CIPA). Read the case study presented on MSNBC at <http://www.msnbc.msn.com/id/6379795/>
2. Answer the Conclusion questions.

Conclusion

1. Describe the impact CIPA might have on other human body systems.
2. Describe three situations where having CIPA puts young children at risk for other injuries.
3. What do you think is going on inside the body of these individuals that keeps them from feeling pain? Provide at least two possible mechanisms.
4. How do the skin and the nervous system interact to allow you to feel pain?
5. Drugs such as morphine and heroin mimic endorphins and bind to the same receptors in the brain. Describe the effect these drugs most likely have on the body. Explain your reasoning.