

IS LIFE BETTER WITHOUT PAIN?

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without a sense of pain or discomfort, children with CIPA easily scratch their corneas and can get serious eye injuries.

(8) Throughout their life, people with CIPA are at risk of fracturing or breaking bones without knowing it. As well, most of us shift around all day as one sustained body position becomes uncomfortable for our joints. People with CIPA stay in the same position for long periods of time which causes a lot of stress on the joints. This eventually leads to joint injuries. Another serious threat comes from overheating. People with CIPA can't tell when they are getting too hot, and when they are, they are unable to

sweat to cool off. Excessive core body temperature can lead to seizures and even death if the body isn't cooled in time.

(9) CIPA is an autosomal recessive genetic disorder. This means that the NTRK1 mutation is located on a chromosome that doesn't determine a person's sex. It also means that both parents have to have the mutated gene to give their child CIPA. Though people with only one mutated NTRK1 gene won't get CIPA, they are carriers of the gene and they can pass this mutated copy on to their children. The disease is a rare one because it is unlikely that both parents will have the mutated gene.

Article Questions

- 1) Describe three reasons why pain is useful.
 - 1) It causes you to remove yourself from the pain producing experience.
 - 2) It causes you to protect the injured area.
 - 3) It teaches you to avoid similar dangerous situations in the future. (1)
- 2) What does CIPA stand for?

CIPA = congenital insensitivity to pain with anhidrosis (2)
- 3) What is anhidrosis?

It is the inability to sweat. (2)
- 4) When the NTRK1 gene is mutated, what is the result?

It causes sensory neurons to not form within the embryo. (3)
- 5) What is a nociceptor?

It is a sensory neuron that collects pain information and sends it to the brain. (4)
- 6) Besides mechanical, thermal and chemical nociceptors, why are sleeping or silent nociceptors important?

They signal to the brain that tissue damage has occurred and that the danger of injury has increased. (4)
- 7) Describe two things that parents of children with CIPA should be careful to monitor.
 - That their child has enough to eat.
 - That they don't chew through their tongue or fingers while teething.
 - That they aren't scratching their eyes.
 - That they don't get overheated.
 - That they don't have fractured or broken bones.
 - That they don't have wounds that are infected.

Any two of these. (6, 7 & 8)
- 8) How does an individual get CIPA and why is the likelihood of this rare?

To get CIPA, both parents have to have the mutated NTRK1 gene and pass it on to their child. Since the chances of two parents in a couple having this gene is low, the cases of people with CIPA are rare. (9)