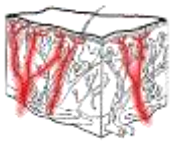
Normal Pain Response

Understanding your child's pain

Injured tissue activates pain nerves.



Pain nerves send message to nearby peripheral nervous system.

1. **Injured tissues activate nerves that transmit pain.**
   - Pain nerves send a message to the other nearby nerves in the peripheral nervous system: "We have a Tissue Injury"
   - Peripheral nerves send message to spinal cord.

Message sent up spinal cord to brain.

2. **Pain message enters the part of spinal cord *called the dorsal horn*.**
   Pain message travels up the dorsal horn to brain.
3. **Brain decides what kind of pain we will feel and how much pain we feel. This is called "Central Modulation".**
   Brain sends **pain information back down spinal cord via frontal horn.**
4. **Frontal horn sends message to peripheral nerves near the injury.**

Message sent from brain down spinal cord.

Peripheral nerves near injury send message to nearby muscles.

Peripheral nerves in muscle.

Peripheral nerves tell muscles to:

- Move leg if necessary. (Example move leg if touching something hot).
- *Tighten* up around injury.
- *Feel pain* when you move your leg.

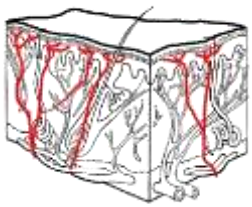
This guards and protects the injury so that healing can take place.

Muscles around injury become tight.

When healing is complete, the nerves that transmit pain are no longer activated.

The Pain Stops.

Injury has healed.



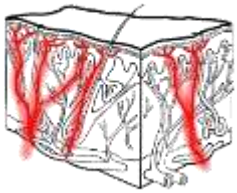
Pain nerves no longer activated.

These instructions are only general guidelines. Your health care providers may give you special instructions.
If you have any questions or concerns, please call your health care providers.

Chronic Pain Response

Understanding your child's pain

Injury has healed.

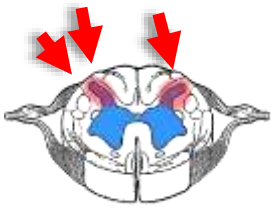


Pain nerves remain activated.

1. Tissue has healed, but the nerves that transmit pain remain activated.

2. Activated nerves continue to send out pain signals.

This constant firing of pain signals starts irritating the dorsal horn in the spinal cord.



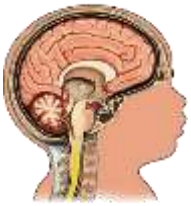
Dorsal Horn Spinal cord

3. Irritated dorsal horn becomes *"hyper- sensitive"* to pain messages.

Sensitive dorsal horn starts over-reacting. Pain messages sent up to the brain become exaggerated.

4. Brain sends pain information back to peripheral nerves in muscle.

Message states: "We need to guard and protect the area around this injury so that healing can take place".

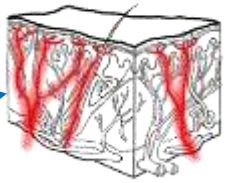


Guarding, protecting, and attempting to heal healthy tissue is *very irritating* to healthy tissues.

Peripheral nerves in muscle.

Skin healed and looks normal on outside.

Healthy tissue in area becomes irritated.



***Irritated tissue under skin* keeps the pain nerves activated.**

Cycle of chronic pain begins