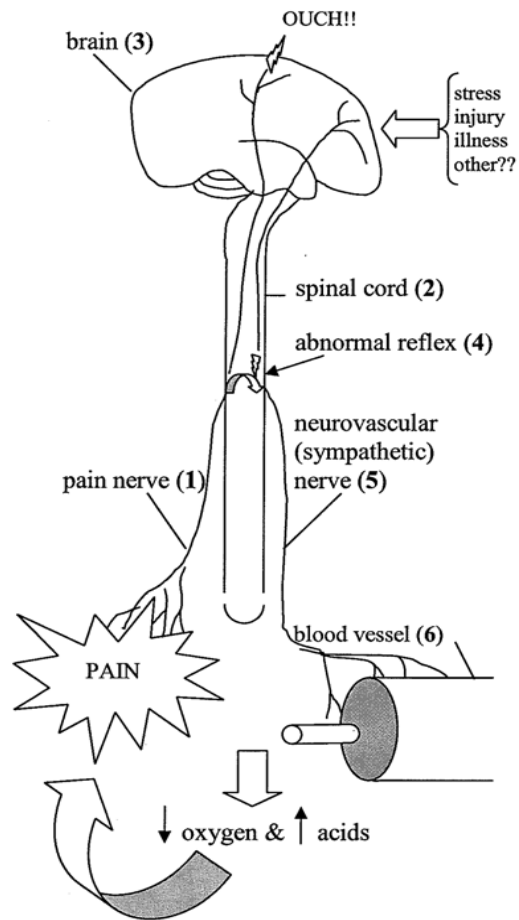


The Normal Path of Pain versus the RND Path of Pain (David Sherry, MD)



The diagram above shows how we normally feel pain such as stepping on a tack. The tissue damage sends a signal through the pain nerve (1), to the spinal cord (2), that then sends the signal to the brain (3). The brain recognizes the signal as being painful.

In RND there is an abnormal short circuit (abnormal reflex) in the spinal cord (4). The pain signal travels up to the brain and also goes to the special nerves (neurovascular nerves) (5) that control blood flow through the blood vessels (6). The nerve signals cause the blood vessels to constrict, decreasing blood flow and causing more pain.

Reflex Neurovascular Dystrophy (RND) Awareness Brochure

Additional information and resources for RND:

- www.childhoodrnd.org
- www.rndawareness.org



TO LEARN MORE

- Adolescent Medicine (206) 987-2028
- Your Child's Health-Care Provider

Children's will make this information available in alternate formats upon request. Please call the Family Resource Center at (206) 987-2201.

This handout has been reviewed by clinical staff at Children's Hospital. However, your child's needs are unique. Before you act or rely upon this information, please talk with your child's health-care provider.

Children's
Hospital & Regional Medical Center
www.seattlechildrens.org

Patient and Family Education

ADOLESCENT MEDICINE

Reflex Neurovascular Dystrophy (RND)

A guide for understanding and treatment

What is Reflex Neurovascular Dystrophy (RND)?

Reflex Neurovascular Dystrophy is a very painful medical condition. It usually affects an arm or leg, but can occur anywhere on the body. The pain is caused by abnormal nerve signals that keep firing even after the original cause of the pain is gone. As a result, the pain is very intense.



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Reflex Neurovascular Dystrophy (RND) Awareness Brochure

What are the symptoms of RND?

The symptoms of RND vary from child to child. Some children may only have pain and others may have all or some of these symptoms:

- Severe pain that is out of proportion to the injury
- Skin is very sensitive to touch
- Skin color may look blue or red
- Skin temperature gets cold or hot
- Swelling

Many children with RND will have thinning of the bones and weakness in the painful limb. There are no specific tests to find out if your child has RND, but sometimes a bone scan will show decreased blood flow in the area of pain.

What causes RND?

RND is the result of abnormal nerve signals that cause decreased blood flow to the area in pain. Because of this, there is continued pain even after the original cause has resolved (see diagram, *The Normal Path of Pain Versus the RND Path of Pain*).

For many children, there is a specific trigger like injury, illness or stress that starts the pain. But for some no specific trigger can be identified.

What is the treatment for RND?

The most effective treatment for RND is to begin to use the painful area in a normal way. Doing exercise rebuilds strength, improves blood flow and breaks the abnormal reflex signals that cause pain. Although it hurts to exercise, it does not cause damage.

Some children are able to work through the pain and do exercises at home. The RND program starts with a home exercise prescription.

If your child cannot do the exercises at home (because their pain is too severe or they are too weak), Children's Hospital and Regional Medical Center has an intensive exercise program. The program is 5 hours of therapy per day (including physical, occupational and pool therapy) 5 days per week. All children in the intensive program also meet regularly with our team psychologist, educator, and doctor. Most children are in the program for 2 to 4 weeks. Medicines are not used because they seem to slow progress in therapy and healing.



Children's Hospital and Regional Medical Center's RND program

The Children's Hospital RND program serves youth who have been diagnosed with RND and other amplified musculoskeletal pain syndromes. We specialize in team treatment of pain with a specific focus on physical and occupational therapy and behavioral support rather than using medicines.

Questions:

If your child is already a patient or to find out if this clinic may be of help to your child, please contact the consulting nurses at (206) 987-2080.