

POLIO NETWORK NEWS

WHAT IS CRAMPING YOUR STYLE? Straight Answers to Your "Cramped" Questions

Holly H. Wise, PT, PhD, and Kerri A. Kolehmainen, MS, MD, Coastal Post-Polio Clinic, Charleston, South Carolina

Tired in the morning? Is it difficult to get comfortable for a good night of sleep? A complaint often reported at the Coastal Post-Polio Clinic in Charleston, South Carolina, is the inability to get to sleep at night due to leg pain, twitching, or cramping.

Muscle cramping is a relatively common, painful, and bothersome complaint among generally healthy adults, and is more common in women than men. Some studies estimate as many as 50-70% of older adults may experience nocturnal leg and foot cramps (Abdulla, et. al., 1999). Although, leg cramps are a common complaint in older adults, they must be taken seriously when the individual is a polio survivor.

What is a muscle cramp?

AKA "stitch," "spasm," "knot," "Charley-horse," or "twitch."

Muscle cramping involves a physiological disturbance of muscle that produces an involuntary and painful contraction. Cramps typically occur in the calf muscle and are accompanied by sudden excruciating pain and persistent muscle contraction. Occasionally, both legs may be affected by cramping simultaneously. Although cramps often resolve spontaneously within minutes of onset, the episodes may continue for hours or days with no apparent pattern of frequency or duration.

Cramps can occur throughout the day but more often occur at night or when a person is resting. Although it is not known exactly why cramps happen mostly at these times, it is thought that the resting muscle is not being stretched and is therefore more easily excited.

The basis for the theory that cramps occur more at rest, due to the muscle not being stretched, is that passive stretching can relieve muscle cramping. Pain associated with cramping is likely caused by the demand of the overactive muscle exceeding its metabolic supply. This excessive demand results in ischemia, or diminished blood flow, to the muscles, and the accumulation of metabolites (waste products).

Causes of Leg Cramps

Twitching and cramping can be caused by over-activity of nerves and muscles from faulty posture, shortened muscle length, and excessive activity or exercise.

Other known causes of muscle cramping include diabetes mellitus, kidney failure, thyroid or neurological disorders, and poor blood flow or peripheral vascular disease. In addition, certain medications and occupational routines can precipitate muscle cramping.

Recurrent cramps without a known cause are called *idiopathic cramps*. These cramps are suspected to be the result of disruptions or imbalances of unknown

origins anywhere in the central and peripheral nervous systems and may explain the wide range of conditions in which the cramping occurs (Bentley, 1996).

Seeking Answers

A thorough history and possibly a referral for screening labs will help determine the causes for leg pain and cramping. Polio survivors can provide a description of their muscle cramps, identification of the time and place when they occur, and an activity log of the 24-48 hours preceding the episode(s). For example, if after a vigorous exercise session or a particularly long walk, a polio survivor's muscles are noticeably twitching, aching, or painful, then the activity probably exceeded the strength of the muscle.

In addition, the physical examination should include:

- ♦ Observation of edema, or swelling in the legs, and an examination of the circulation, or vascular supply, to the legs. Occasionally, a diagnostic ultrasound test (a Doppler) will also

CONTINUED ON PAGE 2

INSIDE THIS ISSUE

Bracing Options	4-5
Ocular Health and Pulmonary Assist Machines	6
Treatment Approach Options	9

be performed to determine the adequacy of blood flow in the legs.

- ♦ Baseline measurements of joint and muscle range of motion to establish if there are shortened muscle lengths and limited motion contributing to the cramping.

- ♦ Manual muscle tests (MMT) of the arms, legs, and trunk muscles to identify which muscles, if any, are at risk for overuse and subsequent cramping. In general, muscles with a strength grade less than a 3 on a 5-point scale are at risk for overuse.

- ♦ Posture, gait, and/or a mobility assessment complements the information gathered from the MMT. Faulty posture is associated with cramping and particular attention should be given to inefficient patterns of movement due to muscle weakness.

Prevention and Treatment of Leg Cramps

The treatment approach for non-idiopathic cramps – cramps in which the underlying cause is known – is to treat the underlying cause. The only proven strategy for the prevention and treatment of *exercise-induced muscle cramps* is the avoidance or reduction of activities that cause cramping.

Strategies to reduce muscle overuse may include lifestyle changes, such as weight reduction, use of assistive and orthotic devices, and the adoption of energy conservation techniques. Other strategies include advice from a physical therapist to create efficient mobility patterns and to intentionally pace day-to-day physical activities. These approaches are designed to allow for sufficient rest of over-used muscles and to eliminate

Holly H. Wise, PT, PhD, and Kerri A. Kolehma, MS, MD, are co-founders and team members of the Coastal Post-Polio Clinic, 354 Folly Road in Charleston, South Carolina, established in 2000, along with Jenny Adams, CPO.

Dr. Kolehma is a physiatrist who is board-certified by the American Academy of Physical Medicine and Rehabilitation. In addition to her private practice, Coastal Pain & Rehabilitation Center, PA, Dr. Kolehma is also Clinical Associate Professor of Neurology at the Medical University of South Carolina.

Dr. Wise is a physical therapist and has worked with polio survivors since 1984. In 1994, she co-founded the University of Miami Post-Polio clinic with Carol Vandenakker, MD, where she worked until 1997 when she relocated to Charleston. Dr. Wise is currently an Assistant Professor in the Physical Therapy Educational Program, Department of Rehabilitation Sciences, College of Health Professions, Medical University of South Carolina.

The authors may be contacted at coastalPRC@aol.com or wisehh@musc.edu.

muscle twitching, cramping, and pain.

As with the general population, nocturnal muscle cramping in polio survivors may also be *idiopathic* in nature and not just related to overuse of muscles affected by polio or the other known causes listed above. The first line of treatment is to stretch the leg muscles before sleep, avoid caffeine in the evening, and eat foods high in potassium (bananas, orange juice, etc.).

To accomplish self-stretching, polio survivors can put their foot flat on the floor and slowly put weight on the foot. This action stretches out the calf muscle, which can also be done in bed by “pointing your toes towards your nose” until the cramping stops. Applying heat and massaging the cramped muscles can provide relief, as can wearing night splints that help prevent muscle shortening. Individualized intervention sessions with a physical therapist and/or referral to a certified orthotist are usually required to correct muscle imbalance and faulty posture.

Although no treatment is conclusively effective, many people achieve temporary relief of symptoms with one or more of these treatments. Success would

include the reduction in the intensity of cramping episodes, number of cramps per episode, and/or in the number of nights free of cramps.

What about quinine? Any new treatments?

The standard pharmacological treatment that has been used for over 50 years is 300 mg quinine taken at night. The outcomes are substandard with about 40% of individuals getting relief (Diener, et. al., 2002). The medicine must be taken for one month to truly tell if it is going to work, and does have side effects: ringing in the ear (tinnitus), dizziness, blurry vision, and headaches.

Newer treatments include vitamin E or calcium gluconate, both of which are available over the counter. The beneficial effects of these non-prescription treatments on nocturnal cramping have not been studied in detail. ■

REFERENCES AND RESOURCES

- Abdulla, A.J.J., Jones, P.W., & Pearce, V.R. (1999). Leg cramps in the elderly: Prevalence, drug and disease associations. *International Journal of Clinical Practice*, 53, 494-496.
- Bentley, S. (1996). Exercise induced muscle cramp – Proposed mechanisms and management. *Sports Medicine*, 21(6), 409-420.