

# COMPARTMENT SYNDROME



## ■ ■ ■ Description

The leg is divided into 4 main compartments separated by a thick, ligament-like tissue called fascia. Within these compartments are muscles, nerves, arteries, and veins. When there is swelling within a compartment, the fascia does not stretch. The swelling within the compartment leads to increased pressure within the compartment. This increased pressure eventually stops blood flow in the veins and arteries and leads to the injury of muscles and nerves by direct pressure and loss of blood supply. This is called compartment syndrome. There are acute compartment syndromes and chronic, exertional compartment syndromes. This is a discussion of acute compartment syndrome. It most commonly occurs in the leg, although compartments exist in all extremities. Compartment syndrome occurs most commonly in the legs, forearms, hands, feet, thighs, and buttocks.

## ■ ■ ■ Common Signs and Symptoms

- Severe pain at rest and with motion of the foot or toes
- Feelings of fullness and pressure in the leg
- Numbness and tingling of the leg, foot, or ankle
- Weakness or paralysis of the muscles of the foot and ankle
- Eventually, cold, blue or pale foot and toes

## ■ ■ ■ Causes

- Increased contents within the compartment, such as with swelling or bleeding, or decreased volume capacity of the compartment, such as with a cast around the leg

## ■ ■ ■ Risk Increases With

- Trauma to the leg
- Tight cast
- Medications that thin the blood (warfarin [Coumadin], aspirin, anti-inflammatory medications) and bleeding disorders

## ■ ■ ■ Preventive Measures

No preventive measures are known, although proper protective equipment may help reduce significant injury; potentially, proper cast application or splinting after an injury or surgery for the first 5 days may help reduce the risk.

## ■ ■ ■ Expected Outcome

This condition is usually curable with early recognition and emergency surgery (within 8 hours).

## ■ ■ ■ Possible Complications

- Permanent injury to muscles and nerves of the leg, foot, and ankle, including numbness, paralysis, and having a nonfunctional limb
- Kidney failure and death from dead muscle products in the bloodstream

## ■ ■ ■ General Treatment Considerations

Initial treatment consists of relieving the pressure on the compartment. If compartment syndrome is due to a cast, removal of the cast is indicated. If it is due to increased pressure within the compartment from increased contents, such as bleeding or swelling, surgery to cut the fascia is necessary. This is an emergency, because damage to the muscles and nerves is irreversible after 8 to 12 hours and may lead to kidney failure or death. Closing the skin may not be possible initially after surgery because of swelling. There may be a need for more than one surgery to either remove dead tissue or to close the skin. After the skin is closed and all the tissues are healed, physical therapy is recommended to regain the strength and motion of the affected joints (foot, ankle, and leg).

## ■ ■ ■ Medication

- Pain relievers may be prescribed as necessary by your physician, usually only after surgery. Use only as directed and only as much as you need.
- After surgery has healed, nonsteroidal anti-inflammatory medications, such as aspirin, ibuprofen, or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.

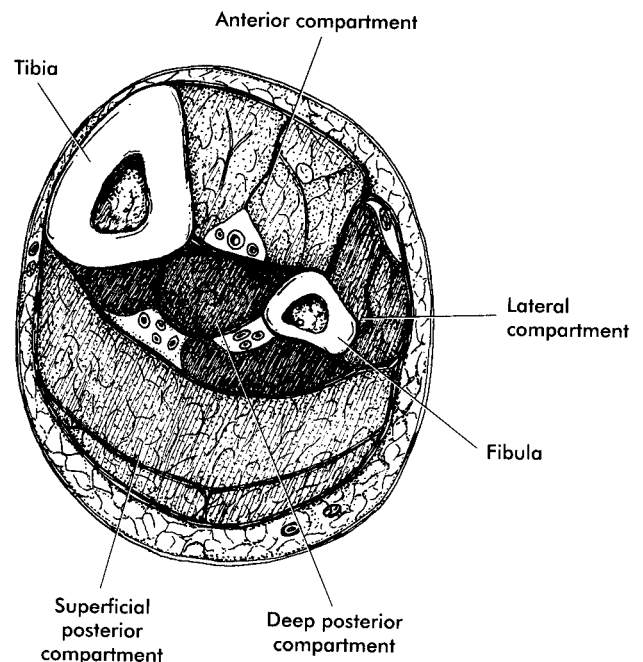


Figure 1

From Baxter DE: *The Foot and Ankle in Sport*. St. Louis, Mosby Year Book, 1995, p. 266.

■ ■ ■ **Notify Our Office If**

- You experience pain, numbness, or coldness in the limb
- Blue, gray, or dusky color appears in the fingernails or toenails
- Any of the following occur after surgery:
  - Increased pain, swelling, redness, drainage, or bleeding in the surgical area
- Signs of infection (headache, muscle aches, dizziness, or a general ill feeling with fever)
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)

Notes:

(Up to 4400 characters only)

Notes and suggestions