

# Madigan Army Medical Center

## Musculoskeletal Treatment Guidelines

### LOWER LEG MUSCLE CRAMPS

#### Diagnosis/Definition

- Cramps, painful involuntary muscle contractions, occur commonly in the gastrocnemius and may be prevented by proper warm up and stretching. They often can be interrupted by forceful stretching of the involved muscle or by activation of the antagonistic muscle.

#### Initial Diagnosis and Management

- History and physical examination.
- Plain films if necessary
- Encourage active range of motion.
- Appropriate restrictions of activity.

#### Ongoing Management and Objectives

- Rest is individualized depending upon severity
- Immobilization is contraindicated in minor injuries however crutches should be used if ambulation is painful.
- A significant gastrocnemius tear is sometimes treated with long leg cast immobilization with the knee flexed at 60 degrees and the ankle in neutral for 3 weeks. This is followed by another 3 weeks with a boot cast and the ankle plantarflexed 10 degrees. Complete tears may require surgical repair.
- Ice for 10 to 15 mins with hourly reapplication.
- Elevate leg frequently with compressive wraps.
- Slow and sustained active stretches

#### Indication a profile is needed

- Any limitations that affect strength, range of movement, and efficiency of feet, legs, lower back and pelvic girdle.
- Slightly limited mobility of joints, muscular weakness, or other musculo-skeletal defects that may prevent moderate marching, climbing, timed walking, or prolonged effect.
- Defects or impairments that require significant restriction of use.

#### Specifications for the profile

- Weeks 1-6
  - Restrict jumping and running
  - No road marching
  - Walking to tolerance after leg cast/boot cast removed

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- Swimming recommended

### **Patient/Soldier Education or Self care Information**

- See attached sheet
- Demonstrate deficits that exist
  - Describe/show soldier his/her limitations
- Explain injury and treatment methods
  - Use diagram attached to describe injury, location and treatment.
- Instruct and demonstrate rehab techniques
  - Demonstrate rehab exercises as shown in attached guide
  - Warm up before any sports activity
  - Participate in a conditioning program to build muscle strength
  - Do stretching exercises daily
- Ask the patient to demonstrate newly learned techniques and repeat any other instructions.
- Fine tune patient technique
- Correct any incorrect ROM/stretching demonstrations or instructions by repeating and demonstrating information or exercise correctly.
- Encourage questions
  - Ask soldier if he or she has any questions
- Give supplements such as handouts
- Schedule follow up visit
  - If pain persists
  - The pain does not improve as expected
  - Patient is having difficulty after three days of injury
  - Increased pain or swelling after the first three days
  - Patient has any questions regarding care

### **Indications for referral to Specialty Care**

- To Physical Therapy: Routine referral for rehabilitation.
- Orthopedic Surgery referral for all Grade III sprains and any grade if plain radiographs are suggestive of any pathology.

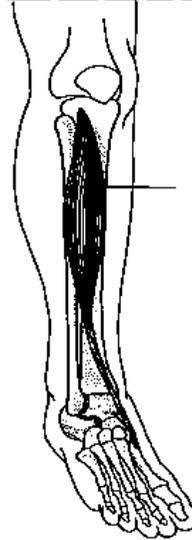
### **Referral criteria for Return to Primary Care**

- Completed specialty care.

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Musculoskeletal Treatment Guidelines**

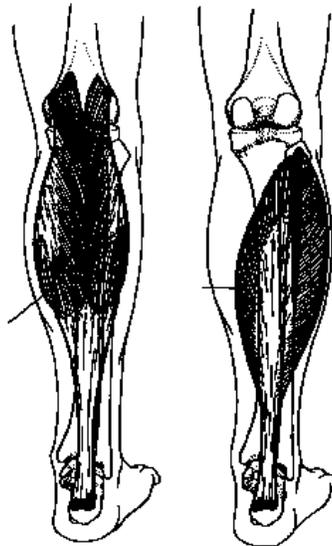
## Anterior Lower Leg Muscle

- Tibialis Anterior

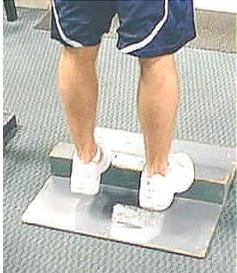


## Posterior Lower Leg Muscles

- Gastrocnemius
- Soleus



# Madigan Army Medical Center Musculoskeletal Treatment Guidelines

Lower Leg Exercises				
<b>1</b>	Seated Calve Raise			Seated Calve Raise
<b>2A</b>	Smith Machine Standing Calve Raises			Standing Calve Raise - Using the smith machine and the shoulder pad as shown takes some of the stress off of the back and neck area. This also takes the risk off of trying to balance heavy weights. Shown in this photo is the lower of flexed phase of the lift.
	Mid Position and Finished Position			
<b>3</b>	Free Standing DB Calve Raises			The objective of free standing calve raises is primarily joint stabilization. Hockey is a game of balance and the stronger the ankles the better the transfer of power into skating skills. Using dumbbells, raise and lower body weight as shown feeling slight stretch at bottom (SLIGHT) and extending to full contraction. Down slowly in control and explode upwards.
<b>4</b>	Toe Raise (anterior tibia)			This exercise is used for primarily for skating skills that utilize foot/ankle flexion such as gliding, stopping, control skating etc. The muscles on the front of the leg provide stability during execution. On tight turn skills, this muscle is the primary mover on the punch in. Extend and flex as shown. Hold at top of position for 1 second. This exercise can be perform standing as in (3) but more sport specific

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PHYSICAL PROFILE																																
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## **PATIENT INFORMATION**

A muscle cramp, technically, occurs when your muscle tightens and shortens causing a sudden severe pain. Muscle cramps generally result from overexertion and dehydration. When you don't have enough fluid in your system, it leads to an electrolyte imbalance that causes your muscles to cramp up. Electrolytes are minerals such as sodium, magnesium, calcium and potassium that help the cells to function normally. An imbalance occurs when we have too much or too little of one or more electrolytes in our system. The main electrolytes affecting muscle cramping are potassium, sodium and calcium.

Cramps may also occur after inactivity, such as sitting too long in one place without moving a muscle. Sometimes you can even get a cramp when you're just lying in bed, though researchers cannot define a cause.

Most often people get cramps in their calves, however, you can also get them in your thighs, feet or just about any muscle. Cramps can be eased by a few simple methods. First, relax the tightened area. You should gently massage the area that's cramped, whether it's a crick in your calf from over exercising or a spasm in your feet. Second, stretch the muscle out slowly and gently, as long as you don't feel pain. For calf cramps, do a wall stretch. Stand about three feet away from the wall, with your knees straight and your heels on the floor. Lean into the wall, supporting yourself with your hands. You will feel the stretch of your calf muscles. Hold for 60 seconds and repeat three times.

You should also make sure to drink plenty of fluids. If you get muscle cramps after exercise, drink water or a sports drink or juice to rehydrate and restore your electrolyte balance. Most of the time water will be sufficient to rehydrate you, however, you are then better off choosing a sports drink containing electrolytes.

You may also undo a cramp with ice. Ice is both a pain reliever and an anti-inflammatory. Try massaging the area with ice for no more than ten minutes or until the area is bright red, which indicates that blood cells have returned to heat the cramped muscle. If ice is too uncomfortable, try heat. Heat improves superficial blood circulation and makes muscles more flexible, so some people find that heat is more soothing for muscle cramps than ice. Try a heating pad for 20 minutes at a time or even a warm shower or bath. Make sure to massage the muscle with your hands following ice or heat.

# Madigan Army Medical Center

## Musculoskeletal Treatment Guidelines

### Input was provided by:

- Occupational Therapy Clinic
- Physical Therapy Clinic
- Orthopedic Clinic
- Family Practice Clinic
- Okubo Clinic
- 555 Engineers
- 1<sup>st</sup> Brigade
- 3<sup>rd</sup> Brigade
- 62<sup>nd</sup> Medical Brigade

### POC:

- Outcome Management

### References:

- Mellion, I., Morris B. (2002). Team Physician's Handbook, 3<sup>rd</sup> Edition. Hanley & Belfus, Inc: Philadelphia, PA.
- Lillegard, Rucker. (1999). The Handbook of Sports Medicine. A symptom-oriented approach, 2<sup>nd</sup> Edition. Butterworth-Heinemann Medical: Burlington, MA.
- Baechle, Thomas, Earle, Roger. (2000) Essentials of Strength Training and Conditioning, 2<sup>nd</sup> Edition. Human Kinetics Pub: Champaign, IL
- Schenck, Robert, Jr. et al. (1999). Athletic Training and Sports Medicine, 3<sup>rd</sup> Edition. American Academy of Orthopedics: Tucson, AZ.
- [http://orthoinfo.aaos.org/fact/thr\\_report.cfm?Thread\\_ID=45&topcategory=Sports&searentry=sprains%20and%20strains](http://orthoinfo.aaos.org/fact/thr_report.cfm?Thread_ID=45&topcategory=Sports&searentry=sprains%20and%20strains)