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# DHA TELEHEALTH CLINICAL GUIDELINES

## FOR VIRTUAL MANAGEMENT

### OF MUSCLE SPRAINS AND STRAINS – 47

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## INTRODUCTION

Dubai Health Authority (DHA) is the responsible entity for regulating, licensing and monitoring health facilities and healthcare professionals in the Emirate of Dubai. The Health Regulation Sector (HRS) is an integral part of DHA and was founded to fulfil the following overarching strategic objectives:

Objective #1: Regulate the Health Sector and assure appropriate controls are in place for safe, effective and high-quality care.

Objective #2: Position Dubai as a global medical destination by introducing a value-based, comprehensive, integrated and high-quality service delivery system.

Objective #3: Direct resources to ensure happy, healthy and safe environment for Dubai population.

## ACKNOWLEDGMENT

This document was developed for the Virtual Management of Muscle Sprains and Strains in collaboration with Subject Matter Experts. The Health Policy and Standards Department would like to acknowledge and thank these professionals for their dedication toward improving the quality and safety of healthcare services.

### The Health Regulation Sector

### Dubai Health Authority

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## EXECUTIVE SUMMARY

Telehealth is based on Evidence Based Practice (EBP) which is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient.

It means integrating individual clinical expertise with the best available external clinical evidence and guidelines from systematic research.

This guideline is presented in the format comprising of clinical history/symptoms, differential diagnosis, investigations and management. Identification of 'Red Flags' or serious conditions associated with the disease is an essential part of this telehealth guideline as it aids the physician to manage patients safely and appropriately by referrals to ER, family physicians or specialists for a face to face management.

## DEFINITIONS/ABBREVIATIONS

**Virtual Clinical Assessment:** Is the evaluation of the patient's medical condition virtually via telephone or video call consultations, which may include one or more of the following: patient medical history, physical examination and diagnostic investigations.

**Patient:** The person who receives the healthcare services or the medical investigation or treatment provided by a DHA licensed healthcare professional.

## ABBREVIATIONS

<b>DHA</b>	:	Dubai Health Authority
<b>EBP</b>	:	Evidence Based Practice
<b>ER</b>	:	Emergency Room
<b>KPI</b>	:	Key Performance Indicator

## 1. BACKGROUND

### 1.1. Introduction

#### 1.1.1. Sprain

- a. A sprain is a stretching or tearing of ligaments. Ligaments are tough bands of fibrous tissue that connect one bone to another.
- b. The areas of the body that are most vulnerable to sprains are ankles, knees, and wrists. A sprained ankle can occur when the foot turns inward, placing extreme tension on the ligaments of outer ankle. A sprained knee can be the result of a sudden twist, and a wrist sprain can occur when falling on an outstretched hand.

#### 1.1.2. Strain

- a. A strain is a stretching or tearing of muscle or tendon. People commonly call strains “pulled” muscles.
- b. Hamstring and back injuries are among the most common strains.

## 2. SCOPE

- 2.1. Telehealth services in DHA licensed Health Facilities.

## 3. PURPOSE

- 3.1. To support the implementation of Telehealth services for patients with Muscle Sprains and Strains in Dubai Health Authority (DHA) licensed Health Facilities

#### 4. APPLICABILITY

- 4.1. DHA licensed physicians and health facilities providing Telehealth services.
- 4.2. Exclusion for Telehealth services are as follows
  - 4.2.1. Emergency cases where immediate intervention or referral is required.
  - 4.2.2. Prescribe Narcotics, Controlled or Semi-Controlled medications.

#### 5. CAUSES

- 5.1. Common causes of sprains and strains include:
  - 5.1.1. Athletic activities or exercise, including running or jogging
  - 5.1.2. Accidents, such as falling or slipping
  - 5.1.3. Lifting heavy objects
  - 5.1.4. Overexertion
  - 5.1.5. Sitting or standing in an awkward position
  - 5.1.6. Prolonged repetitive motion

#### 6. RISK FACTORS

- 6.1. Sprains or strains are not restricted to athletes and can happen while doing everyday tasks. Athletes are more at risk for developing a strain. It is common for an injury to occur when there is a sudden increase in duration, intensity, or frequency of an activity. Anyone at any point can experience a sprain or strain, but certain risk factors increase the odds for overstretching a joint.
  - 6.1.1. Insufficient physical activity

6.1.2. Using improper equipment

6.1.3. Not warming up before workout

## 7. SYMPTOMS AND SIGNS

The symptoms of a sprain and a strain are very similar. That's because the injuries themselves are very similar, leading to the two conditions being frequently confused with each other.

### 7.1. Sprains

7.1.1. Most common symptoms and signs of sprains are:

- a. Bruising
- b. Pain around the affected joint
- c. Swelling
- d. Limited flexibility
- e. Difficulty using the joint's full range of motion

7.1.2. Sprains can cause rapid swelling. Generally, the greater the pain and swelling, the more severe the injury. The grading is as follows:

- a. Mild: Grade 1 - The ligament stretches excessively or tears slightly.  
The area is somewhat painful, especially with movement. It's tender.  
There's not a lot of swelling. The patient can put weight on the joint.
- b. Moderate: Grade 2 - The fibers in the ligament tear, but they don't rupture completely. The joint is tender, painful and difficult to move.



The area is swollen and may be discolored from bleeding in the area.

The patient may feel unsteady when tries to bear weight on the joint.

- c. Severe: Grade 3 - One or more ligaments tear completely. The area is painful. The patient can't move the joint normally or put weight on it. If the sprain occurs in the ankle or knee, when patient tries to walk, the leg feels as if it will give way. The joint becomes very swollen and also can be discolored. The injury may be difficult to distinguish from a fracture or dislocation.

## 7.2. Strains

7.2.1. As with sprains, signs and symptoms of strains will vary depending on the severity of the injury. Common signs and symptoms may be similar as in a spasm and include:

- a. Muscle spasm
- b. Pain around the affected joint
- c. Swelling
- d. Limited flexibility
- e. Difficulty using the joint's full range of motion

7.2.2. In the case of a severe strain, the muscle or tendon is torn apart or ruptured. There may be significant bleeding, swelling and bruising around the muscle, and the muscle may not function at all.

### 7.3. Delayed-onset muscle soreness (DOMS)

7.3.1. This is another condition that presents within 24 to 48 hours after a bout of unaccustomed exercise. Pain is localized, and the condition usually resolves within 5 to 7 days without intervention. After DOMS develops, passive stretching and resumption of activity aggravate the pain. Palpation of the muscle is painful and is associated with a reduced range of movement (ROM) and prolonged strength loss. Laboratory testing reveals an elevated level of creatine kinase.

### 7.4. Relevant History

- 7.4.1. In taking a history of the injury, the physician should ask about the following:
- a. The time, circumstances, and kind of trauma experienced, including its force and direction.
  - b. Onset and development of symptoms such as pain, swelling, bruising, loss of function, heat, and a sense of instability. Instability can indicate a significant sprain.
  - c. Experiencing a pop or snap at the time of the injury can signify a ruptured ligament or fractured bone.
  - d. Any predisposing or aggravating conditions, such as epilepsy, anticoagulant treatment, or hemophilia.

e. Previous episodes, their management, and their outcomes.

## 8. RED FLAGS

- 8.1. Severe pain, swelling or discoloration in the injured muscle
- 8.2. Hear or feel a pop in the muscle at the time of injury
- 8.3. A pale or dusky blue color at the injured site or in the fingers or toes beyond
- 8.4. Injured muscle is weak or has difficulty moving compared to the same muscle on the opposite side of the body
- 8.5. Loss of movement of the injured limb
- 8.6. Numbness of the extremity
- 8.7. Coldness in the extremity
- 8.8. Deformity of the limb
- 8.9. Muscle symptoms that do not improve after 48 hours

## 9. DIFFERENTIAL DIAGNOSIS

- 9.1. Fracture
  - 9.1.1. Can be easily differentiated from grade 1 and 2, but difficult to differentiate from grade 3 injuries.
  - 9.1.2. Usually needs additional tests to differentiate.
  - 9.1.3. Radiography in 2 planes usually can identify fracture and dislocations.
- 9.2. Cartilage injury

- 9.2.1. Difficult to differentiate clinically from joint sprain.
- 9.2.2. MRI often required. Will show intact ligaments as well as the size and extent of the cartilage injury.

## 10. INVESTIGATIONS

- 10.1. X-ray
  - 10.1.1. Should be arranged only if a fracture requiring specific treatment is suspected or needs to be excluded.
- 10.2. Ultrasound
  - 10.2.1. Can confirm the diagnosis of tendon rupture. The diagnostic reliability of ultrasound is however not optimal.
- 10.3. MRI
  - 10.3.1. Usually the gold standard to confirm the diagnosis and evaluate the extent of injury, especially to differentiate partial and complete tear. However, should only be ordered if:
    - a. Pain is ongoing
    - b. Pain is out of proportion despite treatment
    - c. Symptoms do not improve in reasonable time
    - d. Function worsens despite treatment
    - e. Any other associated structure involvement is suspected.
- 10.4. Arthroscopy
  - 10.4.1. is useful in evaluation when there is some associated injury that needs to be addressed at the same time:

## 11. MANAGEMENT

- 11.1. Refer to APPENDIX 1 for the Virtual Management of Muscle Sprains and Strains

## 11.2. Treatment for

- 11.2.1. Mild sprains (Grade 1) includes RICE, sometimes physical therapy exercises and medication.
- 11.2.2. Moderate sprains (Grade 2) refer for face to face consultation and often require a period of bracing.
- 11.2.3. The most severe sprains (Grade 3) refer for face to face consultation and may require surgery to repair torn ligaments.

## 11.3. Management - Mild sprains (Grade 1):

- 11.3.1. The main goals of the treatment are to:
  - a. Relieve pain
  - b. Maintain range of movement (ROM)
  - c. Maintain strength
  - d. Return to preinjury activities
  - e. Prevent recurrence of injury

## 11.4. General steps in management include:

- 11.4.1. Initiation of short-term treatment with RICE (rest, ice, compression, elevation).
- 11.4.2. If pain needs additional measures, treatment with analgesics.
- 11.4.3. If rapid return to work or competitive sports is important, an oral nonsteroidal anti-inflammatory drug (NSAID) may be considered.

- 11.4.4. Early mobilization should be advised, typically starting after 2 to 3 days of rest.
- 11.4.5. Advice on prognosis should be given. Recovery to usual function at work and sports depends on the site and severity of the injury, as well as on levels of activity.

## 11.5. RICE

RICE should be started as soon as possible.

### 11.5.1. Rest

- a. Avoids pain from movement.
- b. The affected part should be stabilized, protected, and rested for up to 48 hours after injury, depending on pain.
- c. Complete immobilization (e.g., by a cast) is not indicated for sprains and strains for management via Telehealth.

### 11.5.2. Ice – Cold therapy

- a. Reduces pain.
- b. The affected part should be immersed in ice water for up to 10 minutes, or a malleable ice pack (e.g., bag of frozen peas) should be applied for 10 to 30 minutes. Cold injury should be avoided, and the affected part should be allowed to warm up before the procedure is

repeated, which may be as frequently as desired for 48 hours: for example, every 2 hours while the patient is awake.

#### 11.5.3. Compression

- a. Provides comfort by limiting movement and may restrict development of swelling.
- b. Should be applied with care so as not to constrict blood flow. If tissues distal to the compression become blue or painful, the compression should be loosened and reapplied with less tension.
- c. Should be used with caution if peripheral arterial disease is present or suspected (e.g., in older people or people with diabetes)

#### 11.5.4. Elevation

- a. Helps to control swelling.
- b. The injured part should be elevated above the level of the heart, if practical.

### 11.6. Pharmacological treatment

#### 11.6.1. Paracetamol

- a. Paracetamol taken regularly is effective for pain relief and is the first choice in minor injuries.

#### 11.6.2. Nonsteroidal anti-inflammatory medications

- a. NSAIDs also provide effective pain relief, but the risk of adverse effects is greater than with paracetamol.
- b. NSAIDs may reduce the time sprains and strains take to heal.
- c. NSAID prescription may be considered for people who need to return as soon as possible to full function at work or competitive sports.
- d. Ibuprofen is recommended as the first choice for an NSAID, as it has the lowest risk of adverse effects.
- e. Gastroprotection (a proton-pump inhibitor) may be given to people at high risk of NSAID GI adverse effects, such as stomach upset, or upper GI bleeding in patients with a history of stomach ulcer or bleeding.
- f. A topical NSAID is rarely indicated.
- g. A combination of paracetamol and NSAIDs can be used, but a combination of 2 NSAIDs is contraindicated.

## 11.7. Early mobilization

- 11.7.1. Mobilization as pain allows helps to prevent stiffness and maintain ROM. In the case of ankle sprain, using an external support with early mobilization may be beneficial.
- 11.7.2. The following has little evidence on the benefit of management:
- 11.7.3. Therapeutic ultrasonography



11.7.4. Short-wave diathermy

11.8. Summary of general approach to strains and sprains

11.8.1. Those presenting within the first 24 to 48 hours after injury with clinical features suggestive of grade 1 should be treated with RICE followed by gentle mobilization. Analgesia in the form of acetaminophen or NSAIDs may be used adjunctively as required. Physical therapy may be started after 48 hours.

11.8.2. Patients should be reviewed after 1 week to assess for improvement. Those with worse pain without functional improvement at 1-week review may possibly have a grade 2 or 3 rupture. At this stage, referral for a face to face consultation is needed for further evaluation with ultrasound and/or MRI. Surgical repair followed by rehabilitation with physical therapy is required.

## 12. REFERRAL CRITERIA

12.1. Referral to ER

12.1.1. Severe pain, swelling or discoloration in the injured muscle

12.1.2. A pale or dusky blue color at the injured site or in the fingers or toes beyond

- 12.1.3. Acute Injury with difficulty in moving the affected muscle compared to the same muscle on the opposite side of the body
- 12.1.4. Loss of movement of the injured limb
- 12.1.5. Numbness of the extremity
- 12.1.6. Coldness in the extremity
- 12.1.7. Acute injury with deformity of the limb
- 12.1.8. The patient can't move or bear weight on an injured joint
- 12.1.9. The patient has a fever, and the injured area is red and hot
- 12.2. Referral to Family Medicine/ Specialist
  - 12.2.1. The pain, swelling, or stiffness does not improve in two to three days
  - 12.2.2. The patient feels a popping sensation upon moving a sprained joint
  - 12.2.3. History of repeated sprains or strains

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## APPENDIX 1 – VIRTUAL MANAGEMENT OF MUSCLE SPRAINS AND STRAINS

