Sports injuries and prevention:

A quick reference guide

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بسم الله الرحمن الرحيم

وزاده بسطة فى العلم والجسم

(الجمع بين العلم والقوة الجسدية)

يا أبت استأجره إن خير من استأجرت القوى الأمين

(الجمع بين الأمانة والقوة الجسدية)

صدق الله العظيم

وقال صلى الله عليه وسلم (حق الولد على الوالد أن يعلمه الكتابة والسباحة والرماية ولا يرزقه إلا حلالا طيبا)

صدق رسول الله (ص)

“ If we could give every individual the right amount of nourishment and exercises , not too little and not too much , we would have found the safest way to health”

Hippocrates 460- 377BC

Learning Objectives

State an introduction

Define sport medicine

Classify sport injuries

Enumerate risk factors

Mention phases of healing

Evaluate sport injuries

Plan a treatment outlines

Demonstrate examples of sport injuries

Summarize prevention of sport injuries

Introduction

- Millions of people participate daily in sports.
- Sports not 100% safe.
- Shoulder more male.
- Knee & ankle more female.
- Some sports emphasize different body parts:
  - UL = tennis, baseball.
  - LL = football , basketball.

- Over years tendons and ligaments elasticity decrease at age of 30 years.
  Muscle strength declines at age of 35 years and Bone strength diminishes at age of 40 years.
- Beginners suffer more injuries.
- No age limit.

- Prevention of injury is better than cure.
  Potentially between 30-50% of sport injuries are preventable.

Fatalities

- Death is much more likely in equestrian sports than in boxing or football.

- Air Sports and Mountaineering are the sports in which traumatic death are most common

Sport Medicine

Definition :

Medical practices encompass the following elements:-

preparation and training, prevention of injuries, diagnosis, treatment, rehabilitation and return to active participation in sport .

Classification:

Acute: - Contact and non-contact.

Chronic: - Overuse.

Or:

- According to their causes:
- Direct and indirect.
- Overuse.

Or:

- Types of tissue injured:
- Soft.
- Hard.

Direct injuries:

Caused by forces generated from outside the body, at the point of impact.

Result in:

- FX.
- DX.
- Contusion & sprains.
- Bruises.

Indirect injuries:

Caused by indirect force applied to the injured part away from the point of impact.

Result in:-

- FX
- DX
- Sprain
- Tear

Overuse injuries:

Caused by repetitive microtrauma overloads the capacity of the tissue to repair itself.

Result in :-

- Stress FX
- Tendonitis
- Fasciitis
- Tennis elbow

Soft tissue injuries:

- Acute.
- Chronic.

Include damage to :

- Skin.
- Muscle.
- Tendons.
- Ligaments.
- Cartilage.
- Blood vessels.
- Nerves.

.- Organs

Hard tissue injuries:

Cause damage to :

. - Bones and teeth

Sporting Injuries come from three main areas

Human (54%) *

.Muscles weakness and imbalance -
.Inadequate warm up and cool down -
.Spectators -
.Collision -
.Improper technique -

Terrain (31%) *

Uneven ground -
.Obstructions on grounds -
Wet and/or slippery grounds -

Equipment (15%) *

.Unsafe protective equipment -
.Inadequate, ill fitting protective equipment -
.Unpadded fixture -

Risk Factors of Sport Injuries

1- intrinsic (inherent to the athlete)

-Not modifiable (age, gender, genetics.)

-Modifiable (biomech., m. strength, flexibility)

2- Extrinsic

- Training, nutrition, equipment, environment, others

PHASES OF HEALING

Phase I :- Inflammatory Stage

- Pain, redness, swelling and loss of function.
- Damage to the tissue cells.
- Increased blood flow to the area.
- Leakage of fluid causing oedema.
- The formation of many blood vessels.

Phase II:- the repair and regenerative stage

Three days to six weeks

- The elimination of debris.
- The formation of new fibres.

-Production of scar tissue.

Phase III:- the remodeling stage

Six weeks to many months

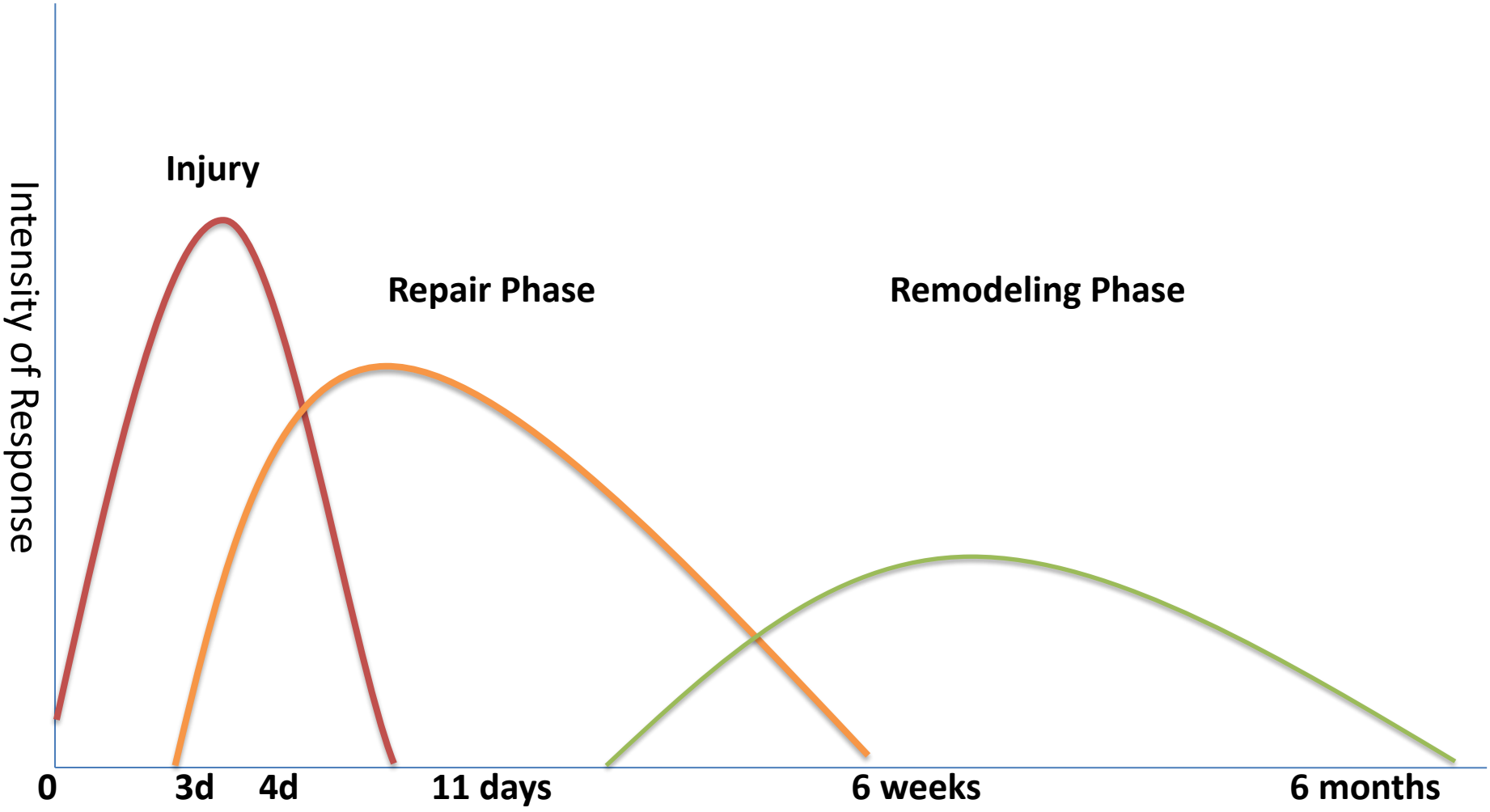
- Increased production of scar tissue.

- Replaced tissue develops in the direction that the force is applied.

-Excessive exercise too early will cause further damage.

-Too little exercise will allow large quantities of scar tissue which lacks strength and flexibility

The Three Phases of Healing



Recognition of injuries

1- Life threatening conditions.

2- Non life threatening conditions.

Proper prehospital care minimizing the extent of injuries:

-Identify injuries
- Positioning.
- Splinting.
- Analgesics AB and tetanus prophylaxis .

!!!! Never forget the ABC

Primary Survey

1. Head
2. Maxillofacial
3. C. Spine and neck
4. Chest
5. Abdomen
6. Perineum, rectum and vagina
7. Musculoskeletal
8. Neurologic

Classification of muscloskeletal injuries:

1. Life threatening injuries.

2. limb threatening injuries.

3. Isolated, non-life- or non-limb threatening injuries.

.4. Combination

Morbidity and Mortality

- Remember FEW musculoskeletal injuries are life threatening.

- Do Not be distracted from primary survey by musculoskeletal injury.

SECONDARY SURVEY

Includes specialized diagnostic tests

Not performed until the patient is stable

Includes: X-ray spine and extremities

CT head, Cx sp., abdomen&chest

MRI – MS CT

Angiography

Bronchoscopy

Initial management to soft tissue injuries
(First 48 hours)

PRICES	**HARM (No)**
Protection.	H eat
Rest.	A lcohol
Ice.	R unning
Compression.	M assage
Elevation.	
.Support	

Evaluation of non-life threatening conditions

2 formats utilized:

1. H.O.P.S.

(History, Observation, Palpation, Special tests)

2. S.O.A.P.

(Subjective, Objective, Assessment, Plan)

Multiple injuries:

- Resuscitation.

- 1st manage:
* DX.
* Fr. with vascular injuries.
* Open Fr.

- Do definite Fr. Stabilization later.

.- Aware DVT and pulmonary embolism

Assorted examples of sports injuries

Friction burn

- *The burn affects only the outer layer of skin*

- *It causes only superficial redness (No treatment)*

Muscle cramp

Athletes may suffer cramp in a muscle during exertion

Any factor which impairs circulation should considered

(dehyd., close-fitting socks, tight shoes and cold weather)

Also small muscle ruptures or bleeding

Prevention and Treatment :

Warm – up exercises , correct training and equipment

- Adequate fluid and salt
- Exert an effect opposite to the affected muscle

stitch

- Sharp pain in the upper abdomen (rt . or lt .)

  when sporting activity is undertaken immediately after a meal .

- Pain may be made worse by deep expiration relieved by deep inspiration.

Causes :

Essentially unknown

Some studies indicate mechanical effect may trigger it .
The connective tissue which anchors the abdominal organs sustains strain

Other possible cause is diaphragmatic ischemia

Treatment :

- avoid training and competition for few hours after meal .

- Rest

- Squeeze a hard object (unknown mech)

SHIN SPLINTS

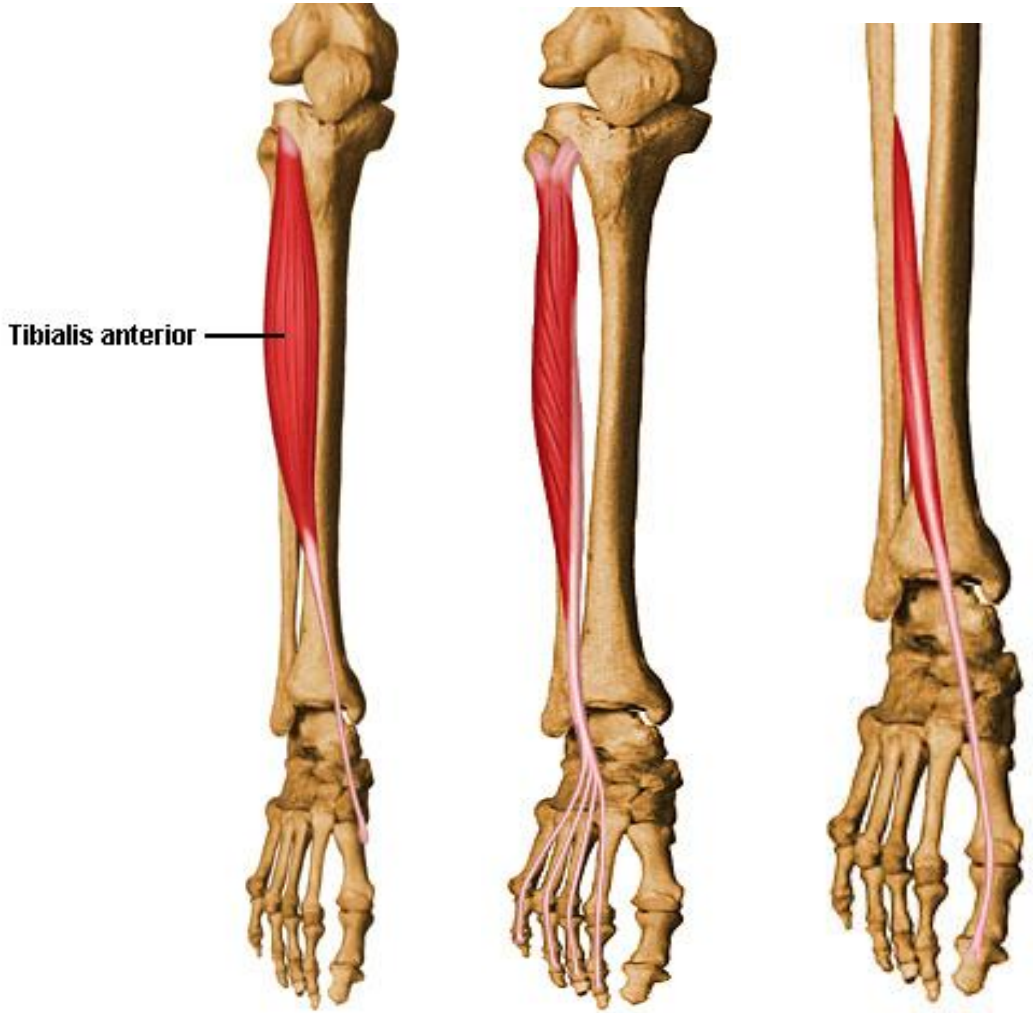
ANTERIOR SHIN SPLINTS

ANATOMY INVOLVED

TIBIALIS ANTERIOR

,EXT DIGITORUM LONGUS

EXT HALLUCIS LONGUS



SHIN SPLINTS

POSTERIOR SHIN SPLINTS

ANATOMY INVOLVED

TIBIALIS POSTERIOR

SHIN SPLINTS

Common Causes

Overuse Injury•

Aggressive Running, Jumping Activities•

Increase mileage or intensity too quickly

Change of surfaces

Weakness / Over Worked Anterior Shin Muscles•

Tight Calf Muscles•

Weakness / Over Worked Post Tib Muscle•

Over Pronation (Flat Feet)•

SHIN SPLINTS

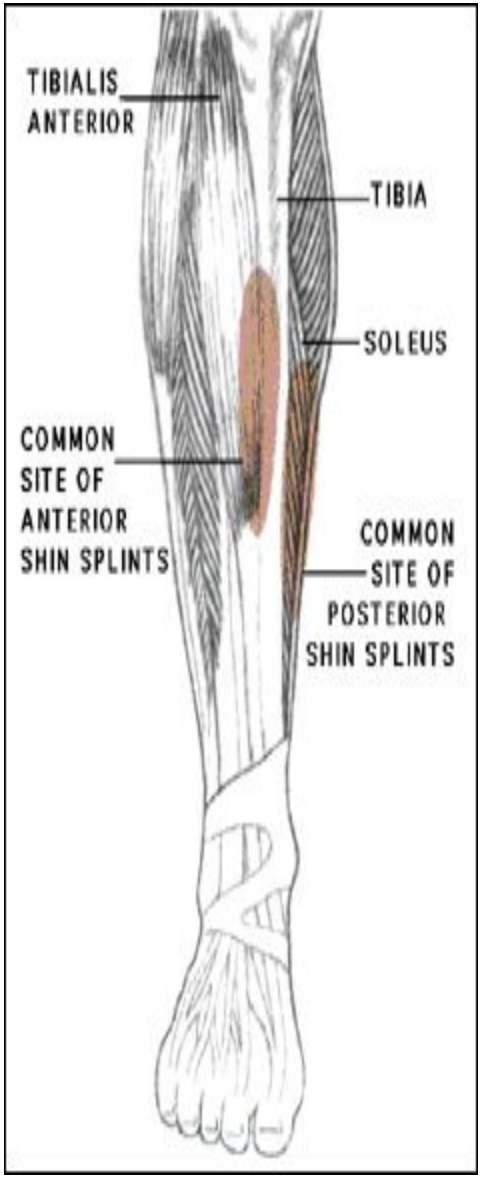
Symptoms

Pain over front medial lower leg (anterior)

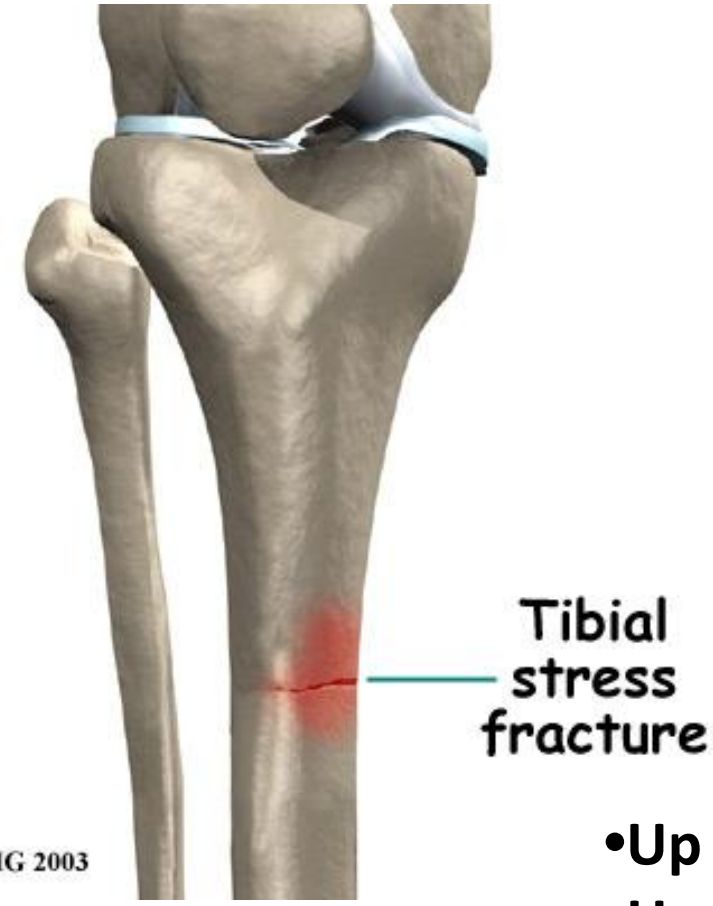
Pain over inner surface of tibia (posterior)

Pain decreases after warm up but returns

Pain after running at rest



STRESS FRACTURES



- **Up to 15% in athletes.** **(runners, jumpers)**
- **Up to 20% among military recruits.**
- **Higher rate in women.**

ANKLE SPRAINS

ANATOMY INVOLVED

INVERSION SPRAIN

ANTERIOR TALOFIBULAR LIG

POSTERIOR TALOFIBULAR LIG

CALCANEOFIBULAR LIG

EVERSION SPRAIN

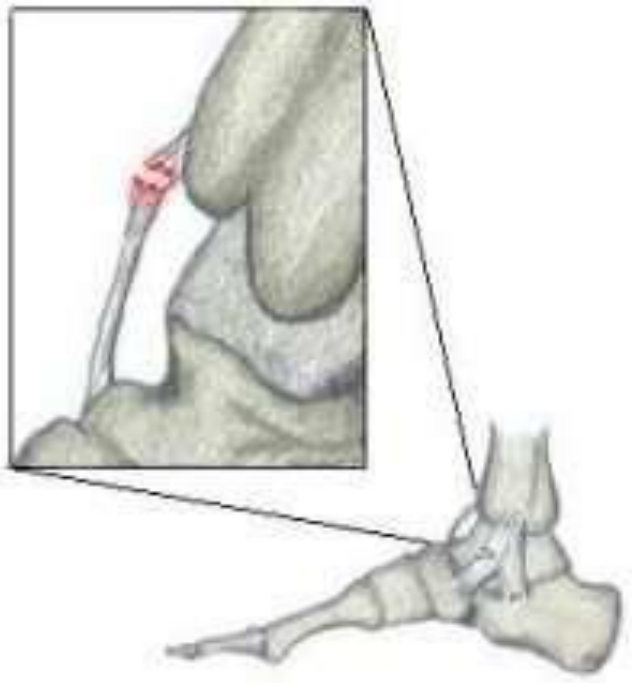
DELTOID LIGAMENT

Footballers Ankle:-

- A bony growth at the front of the ankle

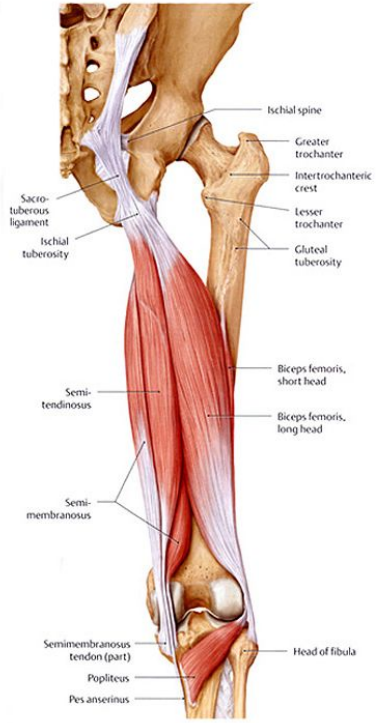
- Over stretch injury

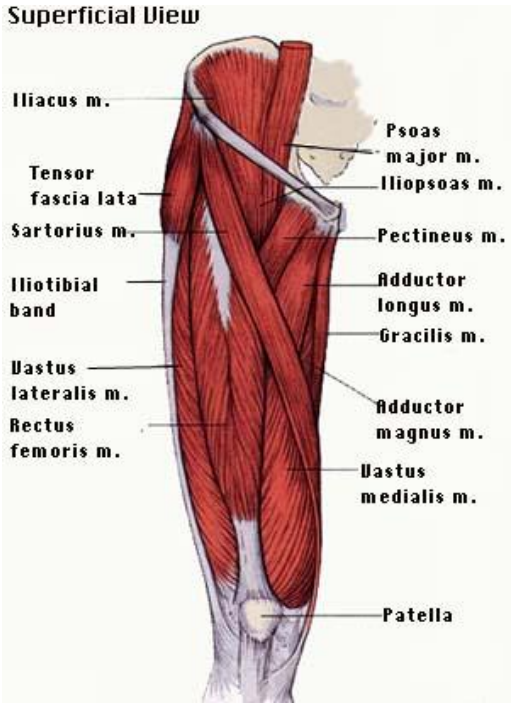
- The bony deposits cause inflammation .in the joint capsule and tendons



MUSCLE STRAINS

- *"Pulled" Muscle*
- *Common muscle strains associated with running sports include hip flexor, hamstring, and calf strains*
- *Generally occur when muscles are contracted forcefully during activities such as running, jumping, kicking*





Sports Injuries regions

Foot and ankle Injuries

Plantar Fasciitis
Tarsal Tunnel Syndrome
Broken Toe
Sprained ankle
Footballers ankle
Ankle impingement

Lower leg injuries

Shin splints
Calf strain
Ruptured achilles tendon
Achilles tendinitis
Anterior compartment syndrome

Knee injuries

Jumper's knee

Cartilage meniscus injury

Anterior cruciate ligament injury

Posterior cruciate ligament injury

Osgood schlatters disease

Thigh Injuries

Hamstring strain

Thigh strain

Dead leg

Low back pain

Spondylolysis

Slipped disc and sciatica

Facet joint pain

Shoulder injuries

Shoulder dislocation

Rotator cuff injury

AC joint sprain

Frozen shoulder

Elbow and wrist injuries

Tennis elbow

Carpal tunnel syndrome

TFCC injuries

Scaphoid fractures

Sports injuries for specific sports

Soccer injuries
Football injuries
Tennis injuries
Volleyball injuries
Running injuries
Skiing injuries
Ice hockey injuries
Rugby injuries
Hockey injuries
Netball injuries
Basketball injuries
Cricket injuries
Throwing injuries

http://www.teachpe.com

Commandments for prevention 10

.Know the rules of the game -1

.Normal muscle strength and balance -2

.Proper technique -3

.Optimum nutrition and water breaks -4

.Adequate warm-up, stretching and cool-down -5

.Proper sport ground -6

.Avoid over training, follow 10% rule and never play through pain -7

.Wear safety gear and use proper equipment -8

.Normal psychological status -9

.Adequate rehabilitation -10

Warm up

They should warm up with 5-10 minutes of light activity, stretching and specific skills of the .sport – until they have a light sweat

:Warm up *

.Helps prepare the mind and body for exercise -

.Increases body and muscle temperature -

.Increases the blood and oxygen to the working muscles -

.Increases flexibility -

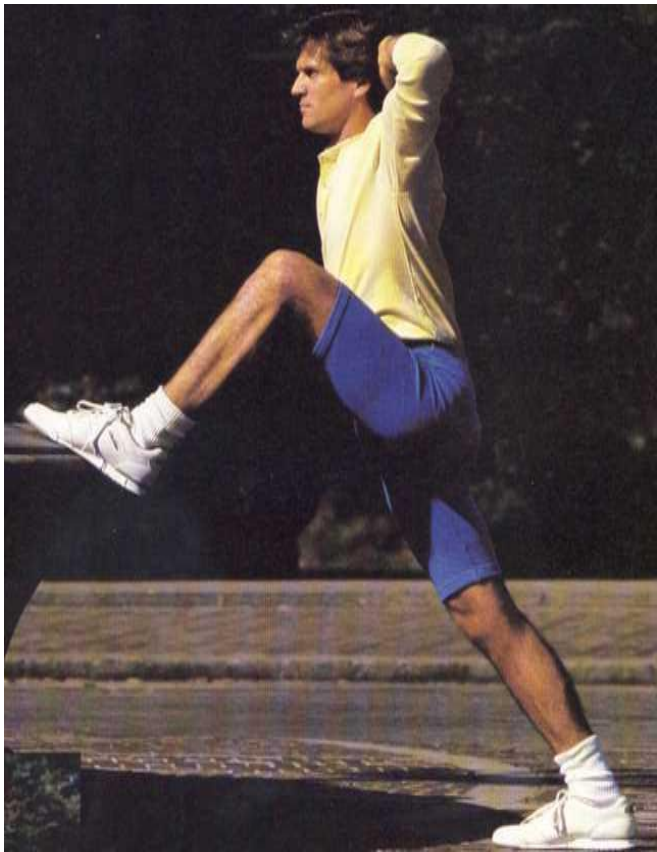
Stretching

Performed during warm up and .cool down

Athlete should NOT feel pain

Hold stretch 30 seconds

Relax into the stretch



Cool Down

Athletes should gradually reduce activity for .5-10 minutes followed by stretching

:Aims

.Prevents pooling the blood in the limb (dizziness and fainting) -

.Removal of the waste products from the muscles (lactic acid) -

.Reduce muscles soreness and stiffness -

Sporting Grounds

-:Be sure of the following

level and firm -

.Free from obstructions -

.Permanent fixture -

.Spectators -

rts are fun

The goal is a pain and injury free balanced .fitness program for all ages

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Thank you for participating today

?Questions and concerns