Recognition and Management of Injuries

**For the following injuries, please give me:**
1) **Mechanism of injury (MOI)**
2) **Signs and symptoms (S/S)**
3) **Care of the injury**

**THE FOOT**

**History**
Was the mechanism a sudden strain, twist or blow to the foot?
What surface were you training on?
What type of footwear was being used while training and was it appropriate for the training?
Is discomfort increased when footwear is worn?

**Observation**
Whether athlete is favoring the foot, is waking with a limp.
Whether the injured part is deformed, swollen or discolored.
Whether foot is well aligned & maintains shape during weight bearing.
What do the wear patterns look like on the sole of the shoe?

**Palpation**
Bony palpation should be done first, followed by soft tissue palpation. Special attention should be given to areas of abnormal swelling or discoloration to check for point tenderness and deformities.

- **Retrocalcaneal Bursitis (Pump Bump)**
- **Fractures and Dislocations of Toes**
- **Heel Bruise**
- **Fractures (Hallux Valgus Deformity)**
- **Plantar Fasciitis**
- **Morton’s Neuroma**
- **Fractures of the Metatarsals**
- **Turf Toe**
- **Metatarsal Arch Strain**
- **Calluses**
- **Longitudinal Arch Strain**
- **Blisters**
- **Hammer Toes**
- **Ingrown Toenail**

**PREVENTION**

- **Footwear**
  - Must fit properly
  - Be sport specific/appropriate

- **Proper Foot Hygiene**
  - Proper washing, drying and powdering of feet
  - Wearing correct socks and changing them frequently
  - Rotation of athletic shoes to allow for proper airing

- **Foot Orthotics**
  - Athletes who have abnormal foot stress caused by faulty mechanics or genetics may find the use of custom orthotics to be helpful
THE ANKLE/LOWER LEG

Lower Leg

History
Has the feeling changed or is there numbness?
Is there any muscle weakness or difficulty walking?

Observation
Postural deviation such as toeing in, should be noted.

Palpation
Musculature in all four compartments should be palpated.
Gentle percussive blows can be given to the tibia or fibula above & below a suspected fracture site.

The Ankle

History
What was the MOI?
Was a crack, snap or pop heard?
Did swelling occur immediately, later or at all?
How disabling was the occurrence? Could the athlete walk right away or unable to bear weight for a time

Observation
Is there any obvious deformities?
Is there crepitus or abnormal sound in the ankle joint?
Is there a normal ankle ROM?
Is the athlete able to walk & if so, is there a normal gait pattern?

Palpation
Palpate key bony landmarks & ligaments first and then progress to musculature.
Feel for any obvious deformities, swelling & localized pain

Functional Examination
1. Walk on toes
2. Walk on heels
3. Hop on affected foot w/o heel touching the surface
4. Start & stop running motion
5. Change direction rapidly
6. Run figure eights (8’s)

Ankle Sprains
Ankle Fractures
Tendonitis
Tibial and Fibular Stress Fractures
Tibial and Fibular Fractures
Shin Splints (Medial Tibial Stress Syndrome)

Compartment Syndromes
Achilles Tendon Rupture
Achilles Tendonitis
Shin Contusions
THE KNEE

History (Specific Questions)

Acute Injury
Did you hear a noise or feel any sensation at time of injury?
- Pop- ACL tear
- Crunch- Meniscal tear
- Tear/Rip- Capsular (Synovial) tear
Did your knee collapse or give out? (Subluxating patella, meniscal tear)
Did the knee swell immediately (cruciate tear), or did it occur later (capsular/synovial/meniscal tear)?
Do you feel a grinding? (Arthritis)

Observation (Specific Focuses)
Do the knees appear symmetrical?
Is one knee obviously swollen?
Does the athlete walk w/a limp?
Can the athlete fully bear weight?
Is the athlete able to perform a half squat?
Can the athlete go up & down stairs w/ease?

Palpation (Specific Areas)
Bone structures of the knee should be palpated for areas of tenderness, pain or deformities, which may indicate fractures or dislocations.

LCL & MCL should be palpated for areas of tenderness or rupture.

The Joint Line should be palpated for areas of tenderness that might indicate injury to either the medial or lateral menisci or joint capsule/synovial membrane.

Ligamentous Injuries
- Medial/Lateral Collateral
- Anterior/Posterior Cruciate

Meniscus

Joint Contusions (Bruises)

Loose Bodies

Illiotibial Band Friction Syndrome (Runner’s Knee)

Fracture of the Patella
Acute Patellar Subluxation or Dislocation
Chondromalacia Patella
Jumper’s Knee (Patellar Tendinitis)
Osgood-Schlatter Disease
THE HIP/THIGH/HAMSTRINGS

HISTORY
- Did the athlete hear any specific noise?
- Was there any previous injuries?
- Athlete will tell what happened.
- What type of surface was it?

OBSERVATION
- How did the athlete walk in? Limping?
- Can athlete get on treatment table properly?
- Can the athlete bring the knee into flexion/ext?
- Obvious swelling?
- Can athlete activate Sartorius muscle?

PALPATION
- Run fingers over injury.
- Must reproduce pain.
- Find Iliac crest for bony landmark.
- Find greater trochanter for bony landmark.
- Feel for edema.

The Thigh
- Quadriceps Contusions
- Muscle Ossification (Myositis Ossificans)
- Quadriceps Muscle Strain
- Hamstring Muscle Strain
- Acute Femoral Fracture
- Stress Fracture to the Femur

The Hip
- Hip Strain
- Dislocated Hip Joint
- Groin strain

The Pelvis
- Iliac Crest Contusion (Hip Pointer)
- Osteitis Pubis
THE SHOULDER

History
What happened to cause pain?
Have you had this problem before?
What is the duration and intensity of the pain?
Where is the pain located?
Is there crepitus, numbness or change in temp. during movement?
Is there a sense of weakness or fatigue?
What shoulder movements/positions aggravate/relieve pain?
If therapy has been given before, what was done?

Observation

Anterior:
Are both shoulder tips even w/each other or is one depressed?
Is one shoulder held higher because of muscle spasm
Is the lateral end on the clavicle prominent? (acromioclavicular sprain)
Does the clavicular shaft appear deformed? (possible fx)
Is there loss of normal deltoid muscle contour? (glenohumeral dislocation)
Is there an indention in the upper biceps region? (rupture of biceps tendon)

Lateral:
Is there thoracic kyphosis, shoulders slumped forward (pectoral weakness)
Is there forward/backward arm hang? (possible scoliosis)

Posterior:
Is there asymmetry such as low shoulder, uneven scapulae or winging? (possible scoliosis)
Is there a distracted or winged scapula on one or both sides? (seratus anterior weakness)

Palpation
Bony palpation should be done first, followed by muscular palpation
Both shoulders should be palpated at the same time for the following:
   Sites of point tenderness/pain
   Deformity
   Abnormal swelling, lumps muscle guarding, and trigger points
   Temperature changes
Both shoulders then should be palpated anteriorly and posteriorly.

Clavicle Fractures
Fractures of the Humerus
Sternoclavicular Joint Sprain
Acromioclavicular Joint Sprain
Glenohumeral Dislocations
Shoulder Impingement Syndrome
Rotator Cuff Strains
Shoulder Bursitis
Biceps Tenosynovitis
Contusions of the Upper Arm
THE ELBOW/ WRIST/HAND

History
How is the athlete describing the pain?
In which way do they say it hurts?
Have they ever hurt this area before?
What were they doing to cause this injury?

Observation
How is this athlete holding their hand?
Any obvious deformities?
Edema?
Compare bilaterally.
Do ant/post or lat/med. form a straight line?
Compare ROM

Palpation
Find bony landmarks
  I.e. humerus, ulna, radius, carpals (anatomical snuff box), metacarpals,
  MCP, PIP, and DIP finger joints.
Any abnormalities?

The elbow
  Olecranon Bursitis
  Elbow Sprains
  Lateral Epicondylitis
  Medial Epicondylitis
  Elbow Osteochondritis Dissecans
  Ulnar Nerve Injuries
  Dislocation of the Elbow
  Fractures of the Elbow
  Volkmann’s Contracture

The forearm
  Contusions
  Colles’ Fracture

The wrist, hand, and fingers
  Wrist Sprain
  Wrist Tendonitis
  Carpal Tunnel Syndrome
  Dislocation of the Lunate Bone
  Scaphoid Fracture
  Hamate Fracture
  Wrist Ganglion
  Metacarpal Fracture
  Mallet Finger
  Boutonniere Deformity
  Jersey Finger
  Gamekeeper’s Thumb
  Collateral Ligament Sprain
  Dislocations of the Phalanges
  Subungual Hematoma
  Phalanx Fractures
THE SPINE

History
Is the athlete complaining of pain in any extremities?
Any burning sensation in middle back?
Previous hx. of spine problems?
How did injury occur?
Ever lose fx of extremity?
Any paraesthesia?

Observation
How is athlete holding themselves?
I.e. bent over, holding themselves up, sideways, hands on lower back.
Are they limping?
Check scoliosis, lordosis, kyphosis

Palpation
POT where?
Vertebrae or just lateral to vertebrae?
Extremity ROM
Test strength of extremities
Test for paraesthesia of extremities.

Cervical
Cervical Fractures
Cervical Dislocations
Acute Strains of the Neck and Upper Back
Cervical Sprain (Whiplash)
Acute Torticollis (Wryneck)
Pinched Nerve (Brachial Plexus Injury)

Lumbar
Low Back Pain
Lumbar Vertebrae Fracture and Dislocation
Low Back Muscle Strains
Lumbar Sprains
Back Contusions
Sciatica
Herniated Lumbar Disk
Spondylolysis and Spondylolisthesis

Sacroiliac
Sacroiliac Sprain
 Coccyx Injuries