

Musculoskeletal Syllabus

1. Shoulder joint

Biomechanics of Shoulder Joint

- Glenohumeral Rhythm
- (How scapula and Humerus moves with a Rhythm of 2:1 in complete 180 Degrees of movement)
- Effects of Sports (Baseball & Golf on the GH joint & Surrounding muscles)
- Concentric and Eccentric muscles activity concept for Shoulder.
- Scapular winging (Medial, Lateral and Superior Winging & the muscles involved in it.) & its treatment
- Scapular (Upward and Downward Rotations) and the muscle involvement in it & its treatment
- Anterior and Posterior tipping of scapula (Also Muscles involved in it)
- Acromioclavicular and Sternoclavicular Joint problems and Its impact on Shoulder Joint and the GH rhythm

Shoulder Conditions with Focus on their Examination, Differential Diagnosis & Treatment

- RC tendinitis
- Supraspinatus Tendinitis
- Biceps tendinopathy
- Impingement Syndrome
- Subacromial Bursitis
- Thoracic Outlet syndrome
- Adhesive Capsulitis / Frozen Shoulder
- Glenohumeral Dislocations and Labral Tears
- Differential Diagnosis of Conditions such as RC tendinitis Vs Supraspinatus Tendinitis Vs Subacromial Bursitis
- Glenohumeral Dislocation
- Differential Diagnosis of Frozen Shoulder Vs Glenohumeral Muscular Tightness.

2. Elbow joint

- Carrying Angle Mechanics
- Radio Humeral, Ulna humeral & Radioulnar mechanics

Elbow Conditions:

- Lateral Epicondylitis
- Medial Epicondylitis
- Pulled Elbow / Nursemaid Elbow
- Pronator Teres Syndrome
- Differential Diagnosis of Lateral Epicondylitis Vs Pulled Elbow
- Differential Diagnosis of Medial Epicondylitis Vs Pronator Teres Syndrome

3. Wrist Joint

- Hand & Wrist Biomechanics and Mobilization
- CMC Thumb – Mechanics – of Flexion extension, Abduction And Adduction
- Snuff Box & the muscles around it
- Radial & Ulnar Deviation & their mobilization

Wrist Conditions

- Carpal Tunnel Syndrome
- De Quatrain's Tenosynovitis
- Colle's Fracture
- Smith's Fracture
- Dupuytren's Contracture
- Deformities (Boutonniere, Swan Neck, Ape hand, Mallet Finger, Gamekeeper's thumb)
- Boxers Fracture
- Difference between Capsular & muscles tightness of the MCP, PIP Jt.

4. Hip Joint

- Lumbopelvic Rhythm
- Anterior & Posterior Innominate - Muscles Involved & its treatment.
- Ant & Post Pelvic Tilt – Muscles Involved & its treatment.
- Sacroiliac Joint Mechanics
- Nutation & Counternutation.
- Lower Crossed Syndrome Muscles Involved & Its treatment
- Anteversion & Retroversion Mechanics & its effect on LE kinematics

- Coxa Valga & Vara Mechanics Mechanics & its effect on LE kinematics
- Hip Ligaments & its role in Gait, Trunk bending & Joint Stability

Hip Pelvis & SI Conditions

- AVN Vs SCFE Vs Perthes Disease >>> Differential Diagnosis
- Trochanteric Bursitis
- IT band Syndrome
- Piriformis Syndrome
- Trendelenburg Syndrome
- Differential Diagnosis of SI Syndrome VS Piriformis Syndrome vs G medius Syndrome

There will be a Separate lecture on THR, TKR, Meniscal injuries

5. Knee Joint

- Screw Home Mechanism
- Femoral & Tibial Rotations During Open Chain Flexion and Extension
- Ligaments of Knee Joints & its role in Restrictions of Knee Movements
- Genu Varum & Valgum mechanics & its effect on LE kinematics

Knee Conditions

- Myositis Ossificans at Knee
- Ligament Sprains & their Differential Diagnosis
- Meniscal vs Ligaments Injuries Differential Diagnosis
- Patellofemoral Syndrome
- Chondromalacia Patella
- Patellar Conditions (Alta & baja Patella & their Differential Diagnosis)
- Pes Anserine Bursitis
- Osgood Schlatter disease
- Jumper's Knee Syndrome
- Differential Diagnosis of Meniscal vs Ligament Injuries
- Differential Diagnosis of Lateral Knee Pain Conditions such as >> PFPS vs Lateral Collateral Injury vs IT band Pain at lateral Knee vs Knee OA

- Differential Diagnosis of Ant knee pain Conditions such as Patellar tendinitis Vs Jumper's Knee vs Knee OA vs Osgood Schlatter disease
- Differential Diagnosis of medial Knee pain such as Pes Anserine bursitis vs Weak VMO pain Vs Knee OA vs MCL injury.

6. Foot & Ankle

- Mechanics of Joints of Hind foot, Midfoot & Forefoot
- Ligaments of Ankle & the conditions in which they provide stability & their Injuries causing instabilities.
- Effect of Forefoot abnormalities on hindfoot & whole LE
- Effect of Hindfoot abnormality of forefoot & the LE.

Leg & foot Conditions

- Medial Tibial Stress Syndrome// Posterior Shin Splint
- Ant Shin Splint
- Anterior Compartment Syndrome (Muscles Involved)
- Posterior Deep Compartment Syndrome Muscles Involved & its symptoms.
- Posterior Superficial Compartment Syndrome
- Ankle Sprains – Medial & Lateral & their Differential Diagnosis with different ligaments
- Achilles Tendinitis
- Plantar fasciitis
- Tarsal Tunnel Syndrome
- Flexor hallucis Tendinopathy
- Foot Conditions _- Pes Cavus, Pes planus Equinovarus & equinus
- Metatarsalgia & Morton's Neuroma & Morton's Fracture
- Hallux Valgus & varus
- Ankle Taping in sprains.
- Differential Diagnosis of Medial Ankle Problems – such as Tarsal Tunnel Syndrome Vs Tibialis Posterior Tendinitis Vs Flexor hallucis Tendinitis Vs Deltoid Ligament Sprain
- Differential Diagnosis of Hind Foot Conditions such as Plantar Fasciitis vs Achilles Tendinitis

- Differential Diagnosis of Lateral Ankle Conditions Such as Calcaneo Femoral Sprain Vs Ant talofibular ligament sprain
- Differential Diagnosis of Ant foot conditions such as Morton's Neuroma Vs Morton's Fracture Vs Forefoot Varus & Valgus
- Differential Diagnosis Of Foot joints Movements Talonavicular VS Subtalar vs Calcaneal VS Distal Tibiofibular mobility

7. Spine

- Coupling Patterns of Spine with Rotations & Side bending
- Spinal Mobilization during rotation, Opening , Closing of Vertebra, To Improve Flexion & Extension , To correct Joint locking , To correct Joint Closing.
- Mechanics of Trunk Bending Ant & Posterior & the muscles involved in it.
- Scoliosis & its impact on the trunk and the whole body movements.

Spine Conditions

- Facet Syndrome
- Disc Prolapse
- Ankylosing Spondylitis
- Spondylolisthesis
- Spondylolysis
- Spondylosis
- Scoliosis
- Differential Diagnosis Of Pain During Posterior Bending such as Facet Syndrome vs Ankylosing Spondylitis Vs Disc Protrusion or Prolapse
- Differential Diagnosis of Spondylosis vs Spondylolisthesis Vs Spondylolysis
- Upper Crossed Syndrome & the Muscles Involved in it along with its treatment

Gait Biomechanics

- Anterior, Posterior & Lateral Trunk bending,
- Muscles Involved during different phases of gait ,
- Abnormalities caused by various Muscles weaknesses ,

- Compensations by the trunk during various muscle weaknesses.

Special Topics

- a. For Soft tissue Injuries of the Various Joints Includes Training for acute phase, Moderate phase & Chronic Phase
- b. THR, TKR, Meniscal Injuries, Ligament Injuries of Knee for All phases
- c. Shoulder Repairs & their rehab
- d. TMJ