

# Dr Ivan Popoff

[www.orthosports.com.au](http://www.orthosports.com.au)

29-31 Dora Street, Hurstville  
160 Belmore Road, Randwick

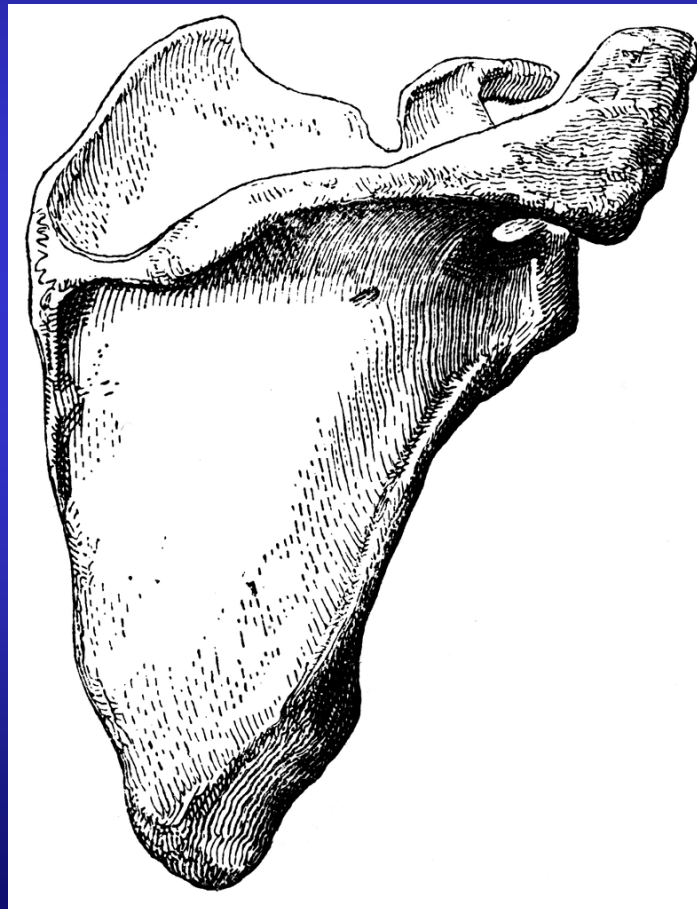


**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**  
**Knee, Elbow & Shoulder Surgery**

# The Dysfunctional Scapula

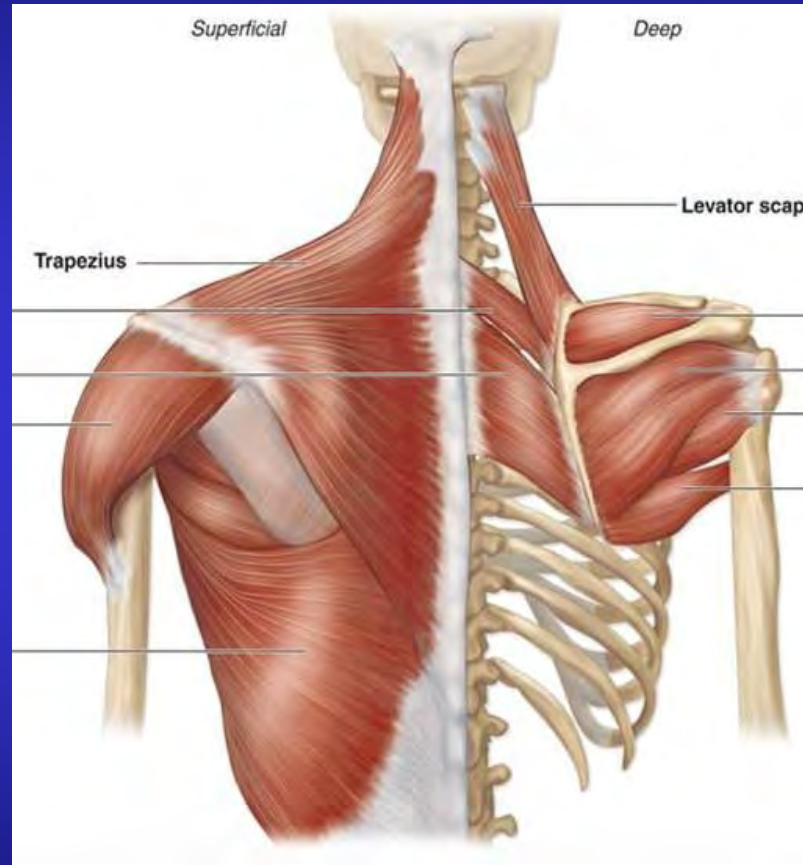


**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**  
**Knee, Elbow & Shoulder Surgery**

# Muscles



Act as force couples

Resting length

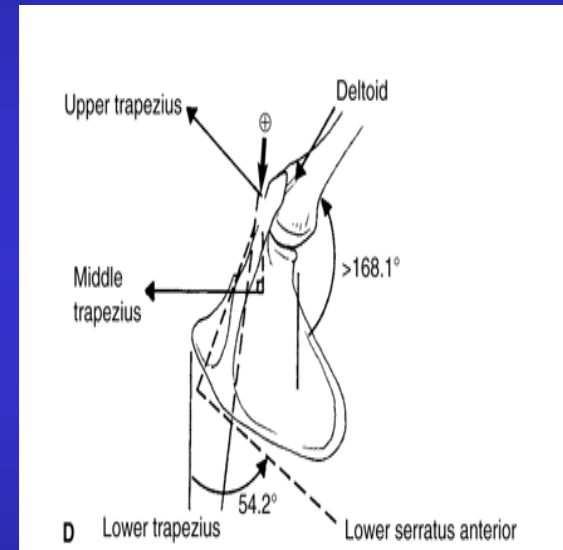
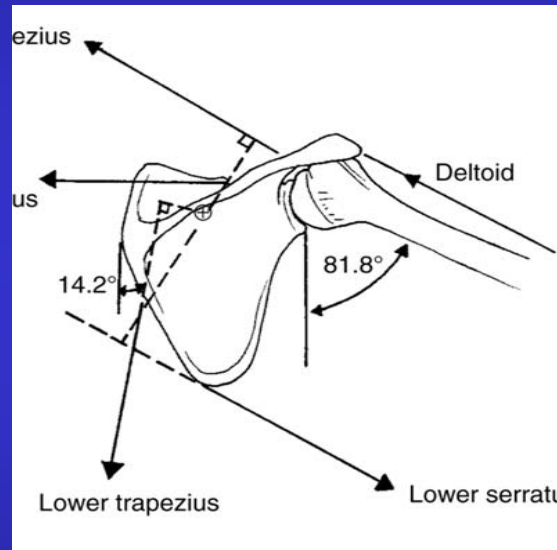
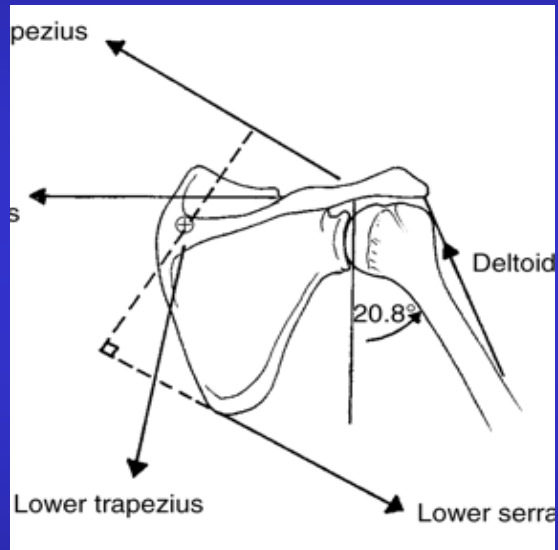


**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

Dr Ivan Popoff  
Knee, Elbow & Shoulder Surgery

# Biomechanics



**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**  
**Knee, Elbow & Shoulder Surgery**

# Biomechanics

Force couples – rotation of scapula

Shoulder elevation – 30degrees GH

- GH- ST variable ratio

av 2:1

Extremes of elevation – ST

Centre of scapula rotation changes from base  
of spine to AC joint



**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**

**Knee, Elbow & Shoulder Surgery**

# Patho - Mechanics

- Alterations in scapular mechanics
  - Primary or secondary
  - alteration in scapula motion (loss of force couples), abnormal posture and resulting symptoms



**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**  
**Knee, Elbow & Shoulder Surgery**

# Hitching/Elevated Scapula

- often associated with rotator cuff pathology , adhesive capsulitis
- unbalanced training  
eg swimmers shoulder
- over use/hypertrophy  
Superior Traps.



**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**  
**Knee, Elbow & Shoulder Surgery**

# Hitching/Elevated Scapula

- Superior shoulder and neck pain
- Impingement – primary or secondary
- Loss of terminal elevation (disruption of force couples)
- Overtime may progress to SICK scapula syndrome



**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**  
**Knee, Elbow & Shoulder Surgery**

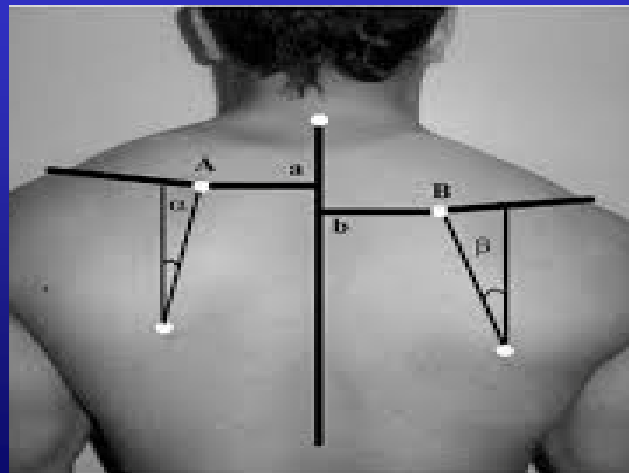


# SICK Scapula Syndrome (scapula infera-corocoid dyskinesia)

Scapula malpositioning

Infera, Protraction, Abduction

- Primary / overuse
- Secondary / subtle instability



**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

Dr Ivan Popoff  
Knee, Elbow & Shoulder Surgery

# Symptoms

Pain – periscapula , neck, anterio lateral chest wall and corocoid (Pec Minor pseudo-tightness) , AC joint, impingement

Loss of elevation – loss of normal scapula rotation, collapse of scapula ( winging)

underload

Thorasic outlet syndrome

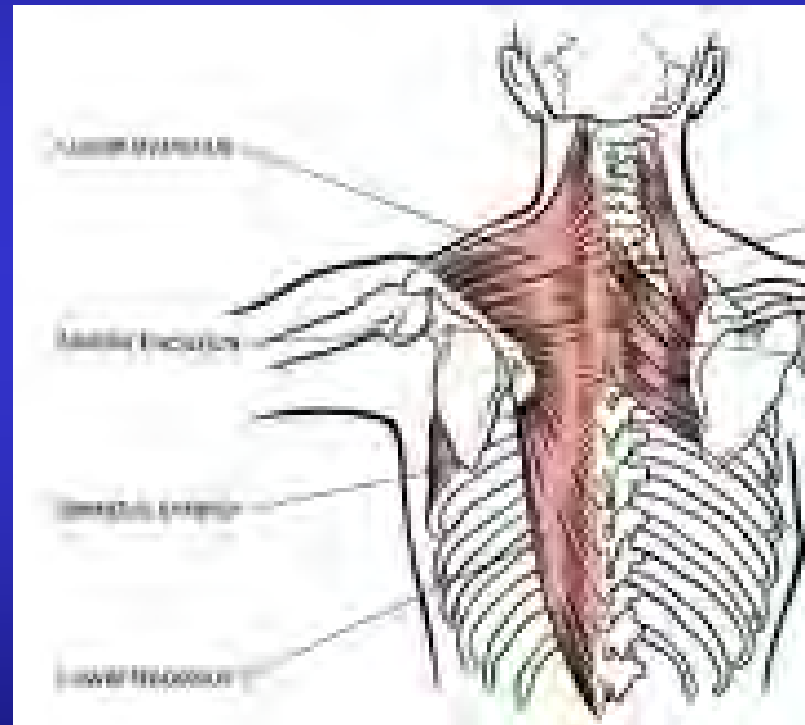
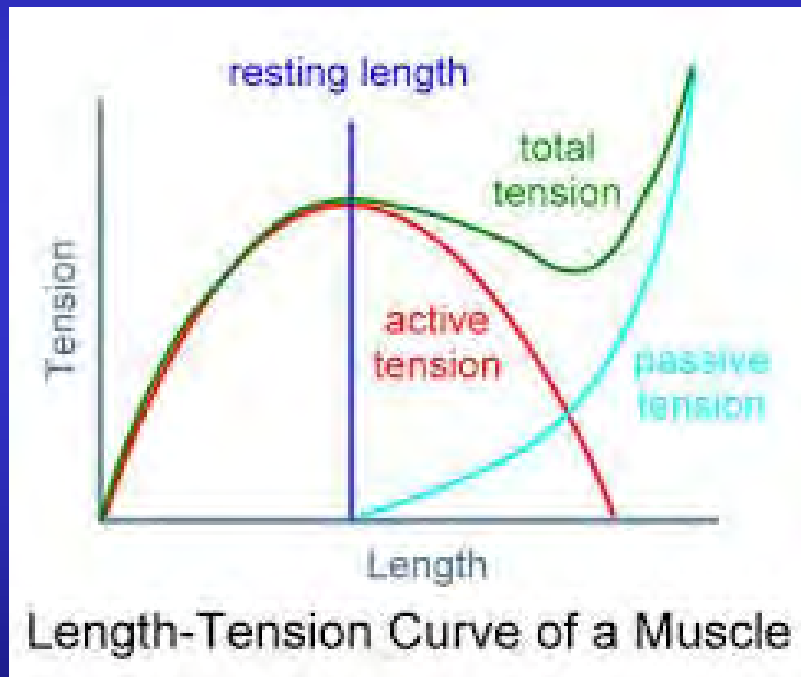


**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**  
**Knee, Elbow & Shoulder Surgery**

# Patho-physiology Pain



**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**  
**Knee, Elbow & Shoulder Surgery**

# Patho-physiology Pain Pec.Minor Pseudotightness

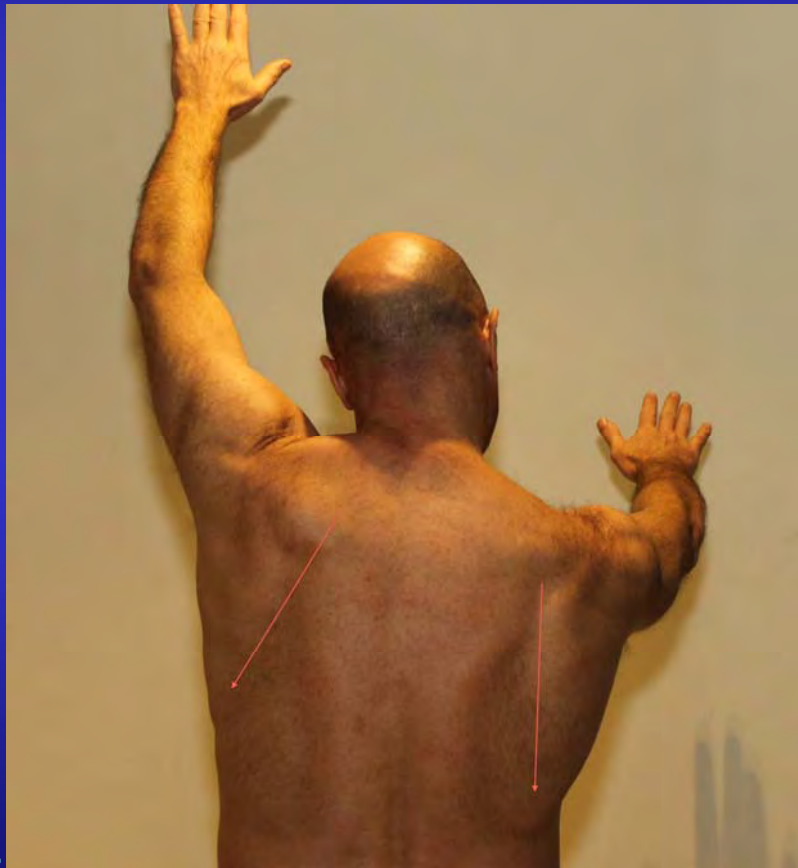


**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

Dr Ivan Popoff  
Knee, Elbow & Shoulder Surgery

# Loss of Elevation scapula relocation test

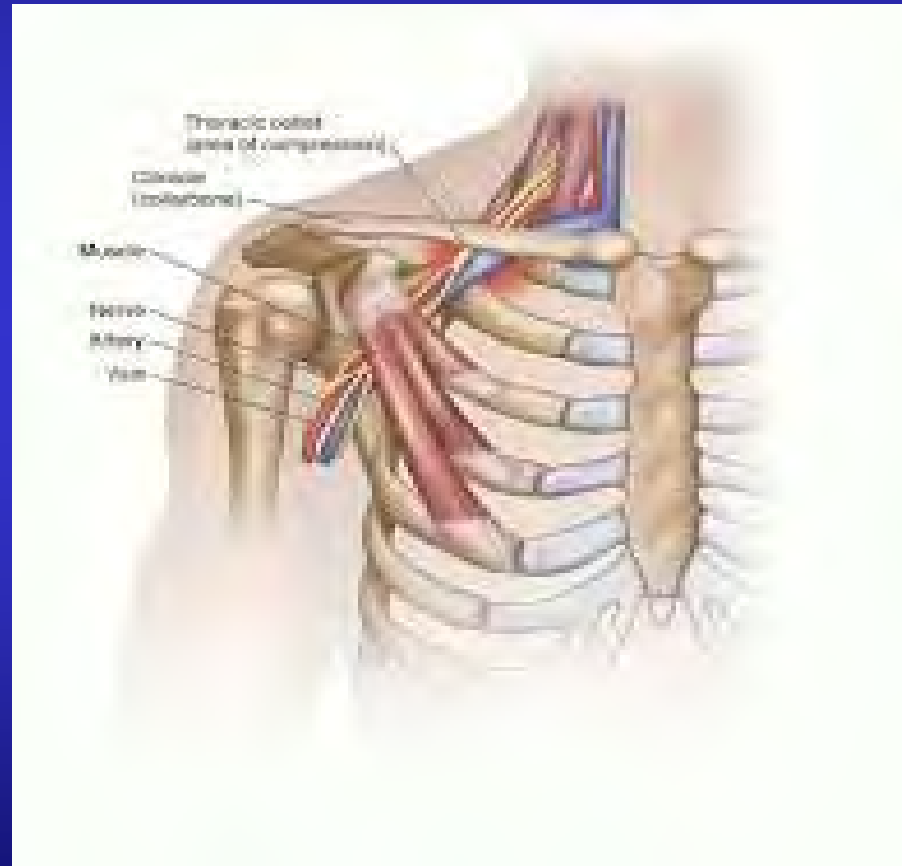


**ORTHOSPORTS**

ORTHOPEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**  
**Knee, Elbow & Shoulder Surgery**

# Thoracic Outlet Syndrome



**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**  
**Knee, Elbow & Shoulder Surgery**

# Subtle Instability

- Scapula “chases’ gleno-humeral joint to maintain fulcrum of rotation
- Muscle fatigue/overload SICK scapula
- Suspect if Hx suggestive, ligamentously lax, positive Instability sign, labral path on MRI (May be NAD)  
May need surgical stabilization



Dr Ivan Popoff

Knee, Elbow & Shoulder Surgery



**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

# Pain Syndromes

CRPS affecting the shoulder often have significant scapula dysfunction

Look for sigmata



**ORTHOSPORTS**

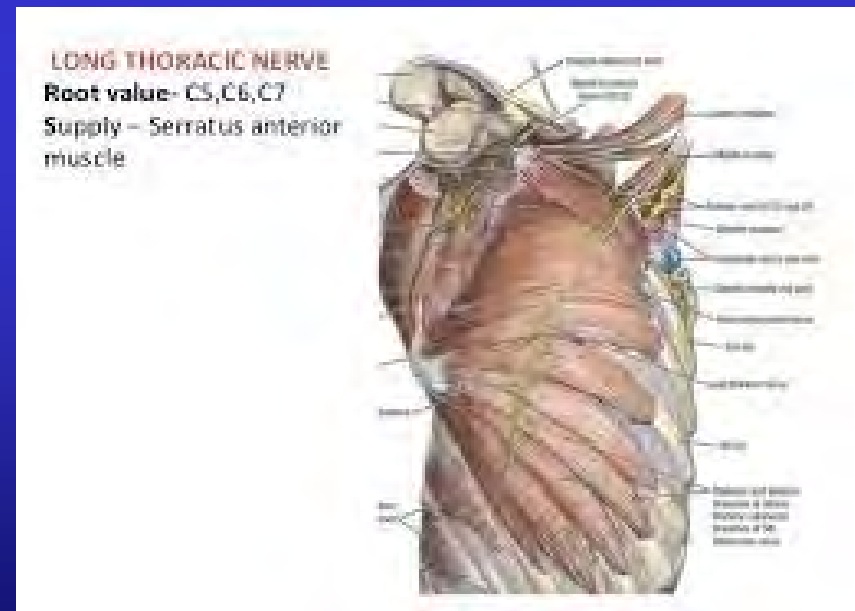
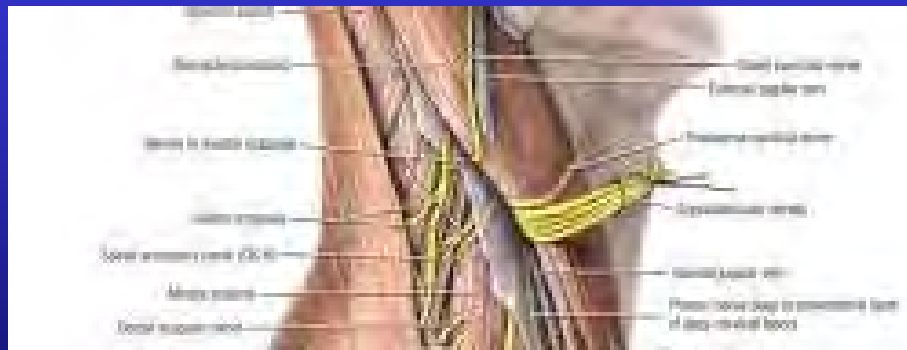
ORTHOPAEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**  
**Knee, Elbow & Shoulder Surgery**



# Neurological/ Iatrogenic

- Spinal Accessory Nerve – neck lymph node excision
- Long Thoracic Nerve- posteriorly placed chest tubes



**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**  
**Knee, Elbow & Shoulder Surgery**

# Treatment

Physical therapy- scapula postural retraining

- scapula stabilization ex
- correction of scapula mechanics
- open and closed chain
- core stability

Work place Ergonomics

Balanced training

Treat primary pathology if secondary



**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**  
**Knee, Elbow & Shoulder Surgery**

Thank you



**ORTHOSPORTS**

ORTHOPAEDIC & SPORTS MEDICINE SERVICES

**Dr Ivan Popoff**  
**Knee, Elbow & Shoulder Surgery**