Keith Meister, MD
Sports Medicine / Arthroscopy
Head Team Physician Texas Rangers

TMI SPORTS MEDICINE
Texas Metroplex Institute for Sports Medicine & Orthopedics
WWW.TMISportsmed.com

Shane Seroyer, MD
Sports Medicine / Arthroscopy
Joint Replacement

THORACIC OUTLET SYNDROME REHABILITATION PROTOCOL

Phase I: Inflammatory/Symptomatic Phase (~1-2 weeks)

1) Refrain from any throwing or pitching if complaining of numbness, pain, or swelling in their hand or arm. Advice to stop any chest bench press, push ups, or upper trap shrugs in the weight room.
2) Postural education on anti-upper cross syndrome (decreased forward head/protracted shoulders position)
   -supine foam roll pectoralis stretching, self upper trap/levator scapulae stretch, lacrosse ball on wall pec minor work, foam roll teres major/latissimus, anterior chest and neck release
   -therapist/trainer manual therapy work: upper trap/levator scapulae stretching, pec minor, scalenes, sternocleidomastoid, subclavius, suboccipitals, teres major/latissimus, thoracic/lumbar paraspinals, quadratus lumborum, and 1st rib depression. Maintenance PROM to involved shoulder elevation, ER(90), IR(90) as tolerated. Thoracic spine joint mobilizations to encourage thoracic extension in upright posture. Manual techniques to reposition rib cage and decrease postural asymmetries.
3) Diaphragmatic respiratory and postural stability training exercises. Goal is to educate the patient on proper respiratory patterns to decrease overuse of the secondary accessory muscle usage.
4) Gentle scapular AROM (limit excessive end range scapular elevation/depression work to allow decompression of thoracic outlet)
5) Deep cervical neck flexor (longus colli) training
6) Nerve glides

Phase II: Recovery/Strength Phase (~2-4 weeks)

1) "Thrower's Ten" type series of scapular/cuff/forearm/bicep/tricep resistive training exercises
2) Continue with anti-upper cross flexibility and postural work in previous phase
3) Challenge patient with diaphragmatic breathing/stability patterns during different body positions
4) Core stability training (exs. tandem kneeling chops/lifts, kneeling anti-rotation core, anti-extension, front planks/side planks, quadruped multifidus etc.)
5) Initiate and progress lower extremity strengthening (exs. lunges, mini band walks, clamshells, single leg glute bridge, step up variations, PB hamstring curl, single leg RDLs, etc.)
6) Stationary bike or elliptical trainer without increase in TOS symptoms. Educate patient to limit their secondary accessory muscle breathing patterns.
7) Modalities PRN

MD Ph 817-419-0303
PT Ph 972-623-2629
3533 Matlock Road, Arlington, Texas, 76015
MD FAX 817-468-5963
PT FAX 972-623-2661

Phase III: Preparatory Phase (~3-6 weeks)

1) Continue with postural flexibility and diaphragmatic breathing training
2) Progress to manual shoulder/scapular strengthening and rhythmic stabilization patterns (exs. supine shoulder at 90 and 120 degrees rhythmic stabs, IR/ER at neutral stabs, side plank ER(0) stabs, D2 pattern, prone horizontal abduction 120 degrees manuals etc.)
3) Progress to Upper Extremity Rebounder Plyometrics: 2 hand chest pass, 2 hand overhead throws, standing diagonal chops, standing IR(neutral), standing ER(neutral), kneeling 90/90 progression
4) Progress co-contraction/stabilization exercises (exs. Ball on wall, ¼ clock wall dribbles, ball drops, decels etc.)
5) Bodyblade patterns (neutral IR/ER, horizontal abduction/adduction, and D2 patterns) Progress to neuromuscular reeducation and rhythmic stabilization drills
6) Advance to jogging/running program for cardiovascular training
7) Modalities PRN

Phase IV: Return to Sport Phase (~6-12 weeks)

1) Initiation of interval long toss program
2) Initiation of interval mound program after completion of interval long toss program
3) Continuation of postural flexibility and diaphragmatic breathing training
4) Continuation of shoulder/scapular/elbow/core/leg program
5) Modalities PRN

Criteria for Return to Play:

1) Physician approval
2) Full, non-painful ROM
3) Satisfactory strength test
4) Satisfactory clinical exam
5) Satisfactory completion of interval mound sports program