**Theodore B.Shybut, MD FAANA FAAOS**
**Southern California Orthopedic Institute**
Knee, Shoulder, Elbow Arthroscopy &
Reconstructive Surgery
Burbank, Valencia / Santa Clarita, Van Nuys
@shybutMD / www.shybutmd.com

# Distal Biceps Repair Protocol

This rehabilitation protocol has been developed for the patient following open distal biceps repair surgical procedure. This protocol is for mechanically robust repairs in people without risk factors for impaired healing. The protocol will vary in length and aggressiveness depending on factors such as:

Retraction and chronicity of tear
Quality of the repaired distal biceps tissue
Length of time immobilized
Strength/pain/swelling/range of motion status
Rehabilitation goals and expectations

Early short arc passive range of motion is beneficial to enhance circulation within the joint to promote healing. The protocol is divided into phases. Each phase is adaptable based on the individual and special circumstances. The **overall goals** of the surgical procedure and rehabilitation are to:

Control pain, inflammation, and effusion
Regain normal upper extremity strength and endurance
Regain normal elbow range of motion
Achieve the level of function based on the orthopedic and patient goals

**Initiation of this protocol may be delayed up to 4 weeks post-op**. The supervised rehabilitation program is to be supplemented by a home fitness program where the patient performs the given exercises at home or at a gym facility. **Important post-op signs** to monitor:

Swelling of the elbow and surrounding soft tissue
Abnormal pain response, hypersensitivity, increasing night pain
Severe range of motion limitations
Premature activity progressions / pushing ahead of protocol
Weakness in the upper extremity musculature
Improper mechanics
Core and peri-scapular strength deficits

**Return to activity** requires both time and clinical evaluation. To safely and most efficiently return to normal or high level functional activity, the patient requires adequate strength, flexibility, and endurance. Functional evaluation including strength and range of motion testing is one method of evaluating a patient's readiness return to activity. Return to intense activities following distal biceps repair requires both a strenuous strengthening and range of motion program along with a period of time to allow for tissue healing. Symptoms such as pain, swelling, or failure to progress appropriately should be closely monitored by the patient and therapist. Specific exercises may be added, substituted, or modified where clinically appropriate by experienced sports therapists or athletic trainers who have expertise in the care of post-operative shoulder rehabilitation. While patients may be "cleared" to resume full activities at 6+ months following surgery, additional time spent in full

**Theodore B.Shybut, MD FAANA FAAOS**
**Southern California Orthopedic Institute**
Knee, Shoulder, Elbow Arthroscopy &
Reconstructive Surgery
Burbank, Valencia / Santa Clarita, Van Nuys
@shybutMD / www.shybutmd.com
activity or sport participation and ongoing rehab based HEP is often necessary to achieve maximal recovery.

**DISTAL BICEPS REPAIR**
**PHASE 1: WEEK 1-2**
PRECAUTIONS
- Post splint/brace at 90° elbow flexion first 2 weeks in neutral forearm position
- No active supination for 14 days
- No active elbow flexion 6 weeks ROM
- Gradual ↑ Active/Passive ROM of shoulder in all planes while in splint
- Wrist/hand/finger full AROM in splint

STRENGTH
- Scapular retractions
- Shoulder shrugs

MODALITIES
- Hot pack before treatment
- E-stim, TENS as needed
- Ice 10-15 minutes after treatment

GOALS OF PHASE 1
- Control pain and inflammation
- Protect healing repair
- Independent in HEP
- Minimal to no edema

**PHASE 2: WEEK 4-6**
PRECAUTIONS
- Elbow placed in a hinged ROM brace set unlocked at 45° to full flexion.
- Brace to be worn at all times except during exercise or bathing
- Passive ROM for elbow flexion
- Assisted ROM for elbow extension and supination/pronation (with elbow at 90°)
- Shoulder AROM as needed based on evaluation, avoiding excessive extension ROM

Hinged Brace Range of Motion Progression (may be adjusted base on Surgeon's assessment of the surgical repair.)
- Week 2 45° to full passive elbow flexion
- Week 3 45° to full passive elbow flexion
- Week 4 30° to full passive elbow flexion
- Week 5 20° to full passive elbow flexion
- Week 6 10° to full passive elbow flexion

Forearm: Initiate AAROM pronation and supination
Progress to active pronation and supination (wk 4)

**Theodore B.Shybut, MD FAANA FAAOS**
**Southern California Orthopedic Institute**
Knee, Shoulder, Elbow Arthroscopy &
Reconstructive Surgery
Burbank, Valencia / Santa Clarita, Van Nuys
@shybutMD / www.shybutmd.com

STRENGTH (in brace)
- Isometric shoulder exercises
- Supine/standing rhythmic stabilizations
- Wrist/hand: grip strengthening, putty, finger web
- Isometric triceps pain free (week 6)

MANUAL
- Scar mobilization
- Passive elbow flexion
- Joint mobs as needed

MODALITIES
- Heat/hot pack before therapy
- US to incision as needed
- OK to introduce blood flow restriction at 2+ weeks once incision healing well
- Ice 10-15 minutes

GOALS OF PHASE 2 / CRITERIA TO PROGRESS
- Protection of repair
- Gradual increase in ROM to 75%+ of full
- Initiate strengthening to surrounding tissues
- Improve scapular stability
- No edema or increase in pain w biceps isometrics or elbow ROM

**PHASE 3: WEEK 7-8**

ROM
- Gradual progression to full AAROM
- AAROM -> AROM elbow flexion
- AAROM -> AROM supination
- AAROM -> AROM shoulder flexion

STRENGTH
- Initiate UBE forward plane using vertical grip
- Prone scapular stabilizer exercises: retraction, extension, rows, T's
(avoid loading biceps with weight during rows)
- Submaximal elbow flexion and supination isometrics
- Triceps and posterior deltoid strengthening: triceps theraband week 8
- Theraband IR/ER shoulder
- May include BFR modality

GOALS OF PHASE / CRITERIA TO PROGRESS
- Tolerate forearm hanging in dependent position and extended out of sling
- AAROM of elbow full extension to full flexion
- No edema or increase in pain

**Theodore B.Shybut, MD FAANA FAAOS**
**Southern California Orthopedic Institute**
Knee, Shoulder, Elbow Arthroscopy &
Reconstructive Surgery
Burbank, Valencia / Santa Clarita, Van Nuys
@shybutMD / www.shybutmd.com

**PHASE 4: Week 9-12**

ROM
Progress to anti-gravity AROM
AROM shoulder flexion

STRENGTH
Begin sub-maximal biceps PREs
Shoulder flexion PREs
Continue and progress scapular stabilizer / periscapular exercises
UE weight shifts on table

MANUAL
Elbow extension stretching if lacking

GOALS OF PHASE / CRITERIA TO PROGRESS
Full (5/5) shoulder flexion, abduction, ER, IR strength
Full elbow AROM supination and extension
No increase in pain or swelling with biceps exercises

**PHASE 5: WEEK 12-20**
STRENGTH
Continue biceps and shoulder PREs including functional strengthening
Biceps curls with dumbbells
Initiate ER/IR exercises at 90 degrees abduction
Rhythmic stabilization activities including standing PNF patterns with tubing
Initiate double arm plyotoss, progress gradually to single arm
Initiate sports specific drills and functional activities
Light upper body plyometric work at week 16+
Interval throwing program may begin at week 16+ pending rehab progress

GOALS OF PHASE / CRITERIA TO PROGRESS
5/5 biceps strength MMT
No increase in symptoms with unrestricted ADLs or activity progressions

**PHASE 6: Weeks 21-24+**
GOALS OF PHASE
Maintain full pain-free ROM
Maximize upper extremity strength, endurance
Enhance functional use of upper extremity
Maximize neuromuscular control
Progressions to sports specific and functional training

**Theodore B.Shybut, MD FAANA FAAOS**
**Southern California Orthopedic Institute**
Knee, Shoulder, Elbow Arthroscopy &
Reconstructive Surgery
Burbank, Valencia / Santa Clarita, Van Nuys
@shybutMD / www.shybutmd.com

Optimize core stability
Gradual return to strenuous work / sporting activities
Initiate sports specific training/functional training

STRENGTH:
Progress strengthening program with increase in resistance and high speed repetition
UBE high resistance for endurance
Eccentric biceps strengthening
Initiate sport specific drills and functional activities
Initiate interval throwing program when criteria met
Progress isokinetics to 90° abduction at high speeds

CRITERIA TO BEGIN THROWING PROGRESSIONS / RTP
Good functional ROM and strength
65% ER/IR isokinetic strength ratio
No less than 15% difference in functional testing compared bilaterally
Single arm hop- Patient in single arm push-up position. Hops with that one UE to small step and then returns to starting position. This is performed 5 times as quickly as possible.
Line test- Patient in push-up position with each hand on piece of tape. Upon start of test, patient removes one hand from tape, touches the opposite line, and then returns to starting piece of tape. This is performed with alternating hand touches. One test is maximal touches in 15 seconds.
Biodex/ Isokinetic testing for supination-pronation or elbow flexionextension within 15% of uninvolved upper extremity

CRITERIA FOR FULL ACTIVITY
For athletes and people performing strenuous manual tasks, return-to-sport or return-to-activity decision making should be individualized and based upon factors including level of demand on the upper extremity, contact / collision vs non contact sport, frequency and intensity of participation, etc. We encourage close discussion with the patient and surgeon and physical therapist prior to advancing return to sport progressions. In general, if ROM is full and pain free, and patient tolerates PRE's, may progress into throwing and ballistic activities as well as unrestricted lifting