

Deltoid Reeducation Post Reverse Shoulder Arthroplasty

Kraft KG: Indiana Hand to Shoulder Therapy Center

Purpose: Implantation of reverse shoulder prosthesis changes the primary driver for glenohumeral elevation from the rotator cuff to the deltoid muscle. Rehabilitation after the procedure will require motor relearning as the central mapping of shoulder motion is reorganized to create the target response. Guidelines for rehabilitation of patients after Reverse Shoulder Arthroplasty have been published by Boudreau, Boudreau, Higgins, and Wilcox (JOSPT, December 2007). These guidelines will be supplemented by recent reports of motor reeducation to improve the efficacy of therapy for upper extremity conditions (Muratori, Lamberg, Quinn, and Duff, Journal of Hand Therapy, April 2013). Because the change in somatosensory feedback is integral to motor relearning after neural injury or after nerve or tendon transfers, parallels to existing rehabilitation protocols will be applied to deltoid retraining in the subjects.

Description: Three case examples of patients post-Reverse Shoulder Arthroplasty will be used to represent the different preoperative conditions necessitating the procedure. These will include: a patient with long standing cuff-deficient arthropathy and patients with complex fractures where the rotator cuff was or was not repaired back to the prosthesis. Changes in DASH scores, passive shoulder range of motion, and pain, will be measured for each patient weekly between post-operative weeks two and twelve. Active range of motion will be recorded weekly for post-operative weeks six through twelve. The specific program of each patient will be reviewed with outcomes, timeline for improvement, and commentary on therapy results at twelve weeks post-operatively.

Summary of Use: Application of nerve and tendon transfer rehabilitation motor reeducation techniques will enhance understanding of how to make best use of the deltoid as the driver for glenohumeral elevation after this procedure. Integration of rehabilitation resources and lessons learned from somatosensory reeducation and across upper extremity joints and procedures to determine how to elicit maximal glenohumeral elevation after Reverse Shoulder Arthroplasty.

Importance: Clinicians have observed a wide variety of outcomes from Reverse Shoulder Arthroplasty (Hand Clinics, December 2012). Application of motor relearning principles from other post-operative protocols can help to offer guidance to the number of visits needed and expectations for patients after this procedure.