

THROWERS' TEN EXERCISE PROGRAM

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The Throwers' Ten Exercise Program^{*} is designed to exercise the major muscles necessary for throwing. The goal of the program is to be an organized and concise exercise program. In addition, all exercises included are specific to the thrower and are designed to improve strength, power, and endurance of the musculature of the shoulder complex.

Diagonal Pattern (D2) Extension. The athlete grips the tubing handle overhead and out to the side with the involved hand. The athlete pulls the tubing down and across the body to the opposite side of the leg (Fig. A-1A). During the motion, the athlete leads with the thumb.

Diagonal Pattern (D2) Flexion. The athlete grips the tubing handle in the hand of the involved arm and brings the arm out 45° from the side, palm facing backward. After turning the palm forward, the athlete proceeds to flex the elbow and bring the arm up and over the uninvolved shoulder (Fig. A-1B). The palm is turned down and reversed to take the arm to the starting position. The exercise should be performed in a controlled manner.

External Rotation at 0° of Abduction. The athlete stands with the involved elbow fixed at the side, elbow at 90°, and the involved arm across the front of the body. The athlete grips the tubing handle (the other end of the tubing is fixed) and pulls out with the arm, keeping the elbow at the side (Fig. A-2A), and returns the tubing slowly and in a controlled manner.

Internal Rotation at 0° of Abduction. The athlete stands with the elbow at the side, fixed at 90°, with the shoulder rotated out. The athlete grips the tubing handle (the other end of the tubing is fixed) and pulls the arm across the body, keeping the elbow at the side (Fig. A-2B), and returns the tubing slowly and in a controlled manner.

External Rotation at 90° of Abduction. The athlete stands with the shoulder abducted to 90° and elbow flexed

to 90°. The athlete grips the tubing handle (the other end is fixed straight ahead, slightly lower than the shoulder). Keeping the shoulder abducted, the athlete rotates the shoulder back, keeping the elbow at 90° (Fig. A-2C). Slow- and fast-speed sets should be performed with the tubing. The clinician will need to change the tubing resistance as appropriate.

Internal Rotation at 90° of Abduction. The athlete stands with the shoulder abducted to 90°, externally rotated to 90°, and the elbow bent to 90°. Keeping the shoulder abducted, the athlete rotates the shoulder forward, keeping the elbow bent at 90° (Fig. A-2D), and then returns the tubing and hand to the starting position. Slow- and fast-speed sets should be performed with the tubing.

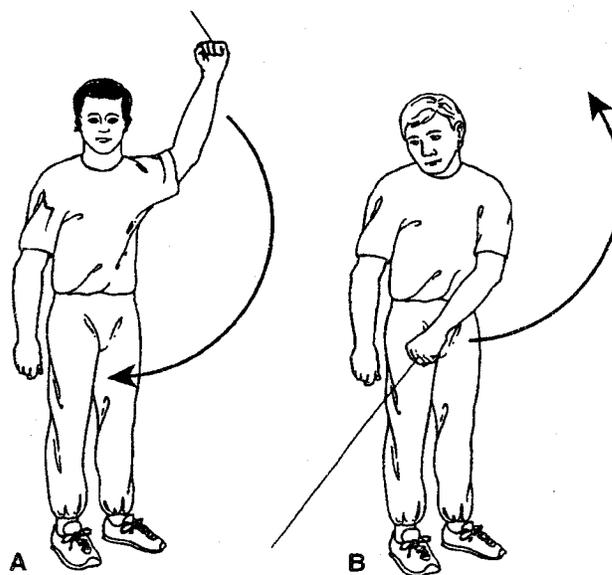


Figure A-1. Diagonal patterns. A, Extension. B, Flexion. (Redrawn from Wilk, K.E., Andrews, J.R., Arrigo, C.A., et al. [2001]: Preventive and Rehabilitative Exercises for the Shoulder and Elbow, 6th ed. Birmingham, AL, American Sports Medicine Institute.)

^{*}Modified from Wilk, K.E., Andrews, J.R., Arrigo, C.A., et al. (2001): Preventive and Rehabilitative Exercises for the Shoulder and Elbow, 5th ed. Birmingham, AL, American Sports Medicine Institute.

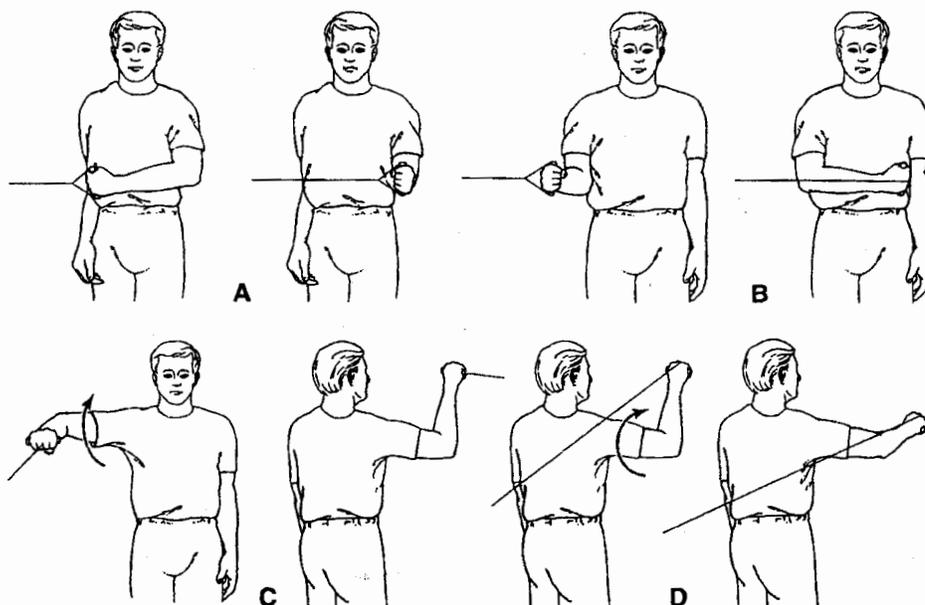


Figure A-2. A, External rotation at 0° abduction. B, Internal rotation at 0° abduction. C, External rotation at 90° abduction. D, Internal rotation at 90° abduction. (Redrawn from Wilk, K.E., Andrews, J.R., Arrigo, C.A., et al. [2001]: Preventive and Rehabilitative Exercises for the Shoulder and Elbow, 6th ed. Birmingham, AL, American Sports Medicine Institute.)

The clinician will need to change the tubing resistance as appropriate.

Shoulder Abduction to 90°. The athlete stands with the arm at the side, the elbow straight, and the palm against the side and raises the arm to the side, palm down, until the arm reaches 90° (shoulder level) (Fig. A-3). The athlete holds the position for 2 seconds and lowers the arm slowly.

Scaption, Internal Rotation. The athlete stands with the elbow straight and thumb down and raises the arm to shoulder level at a 30° angle in front of body (Fig. A-4), not going above shoulder height. The athlete holds the position for 2 seconds and lowers the arm slowly.

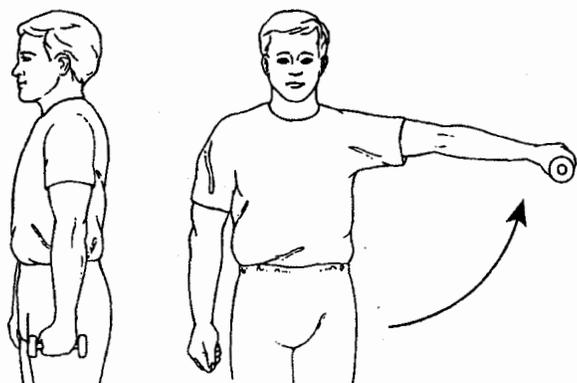


Figure A-3. Shoulder abduction to 90°. (Redrawn from Wilk, K.E., Andrews, J.R., Arrigo, C.A., et al. [2001]: Preventive and Rehabilitative Exercises for the Shoulder and Elbow, 6th ed. Birmingham, AL, American Sports Medicine Institute.)

Prone Horizontal Abduction (Neutral). The athlete lies on the table, face down, with the involved arm hanging straight to the floor and the palm facing down. The arm is raised out to the side, parallel to the floor (Fig. A-5A). The athlete holds the position for 2 seconds and lowers the arm slowly.

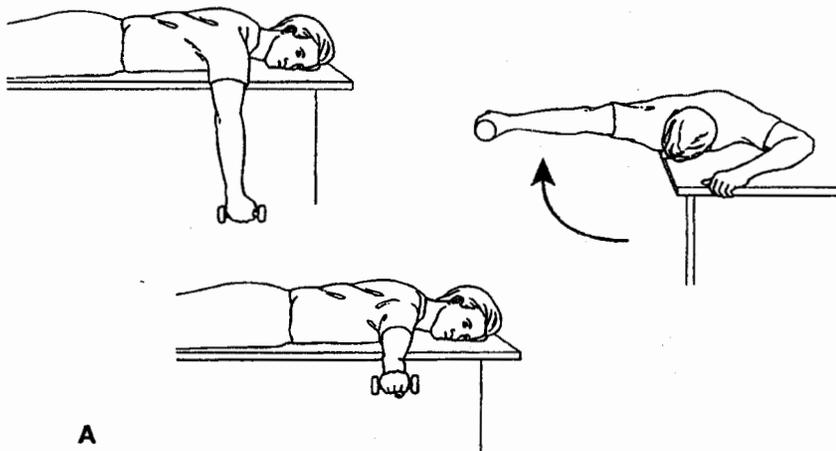
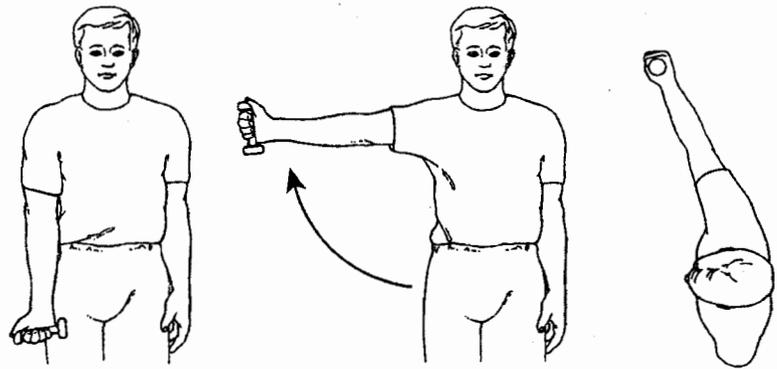
Prone Horizontal Abduction (Full External Rotation, 100° of Abduction). The athlete lies on the table, face down, with the involved arm hanging straight to the floor and the thumb rotated up (hitchhiker position). The arm is raised out to the side with the arm slightly in front of the shoulder, parallel to the floor (Fig. A-5B). The athlete holds the position for 2 seconds and lowers the arm slowly.

Press-ups. The athlete, seated on a chair or on a table, places both hands firmly on the sides of the chair or table, palm down and fingers pointed outward. The hands should be on a straight line with the shoulders. The athlete slowly pushes downward through the hands to elevate the body (Fig. A-6). The athlete holds the elevated position for 2 seconds and lowers the body.

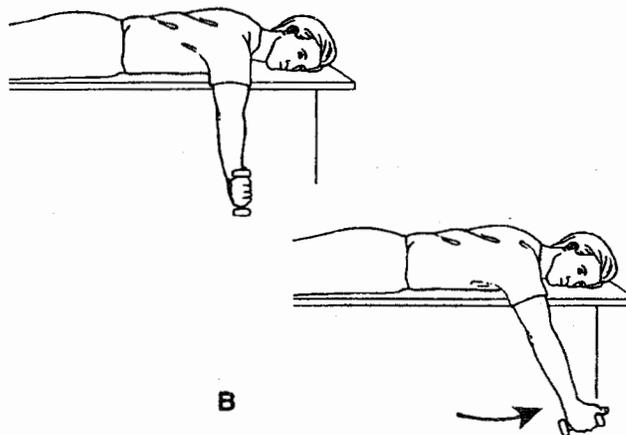
Prone Rowing. The athlete lies on the stomach with the involved arm hanging over the side of the table, a dumbbell in the hand, and the elbow straight. The athlete slowly raises the arm, bending the elbow and bringing the dumbbell as high as possible (Fig. A-7). The athlete holds the position for 2 seconds and lowers the arm slowly.

Push-ups. The athlete starts in the down position with the arms in a comfortable position. The hands should be placed no more than shoulder-width apart. The athlete pushes up as high as possible, rolling the shoulders forward after the elbows are straight (Fig. A-8). The athlete can start with a push-up into the wall and can gradually progress to a table and eventually to the floor, as tolerated.

Figure A-4. Scaption external rotation. (Redrawn from Wilk, K.E., Andrews, J.R., Arrigo, C.A., et al. [2001]; Preventive and Rehabilitative Exercises for the Shoulder and Elbow, 6th ed. Birmingham, AL, American Sports Medicine Institute.)



A



B

Figure A-5. Prone horizontal abduction. *A*, Neutral. *B*, Full external rotation, 100° abduction. (Redrawn from Wilk, K.E., Andrews, J.R., Arrigo, C.A., et al. [2001]; Preventive and Rehabilitative Exercises for the Shoulder and Elbow, 6th ed. Birmingham, AL, American Sports Medicine Institute.)

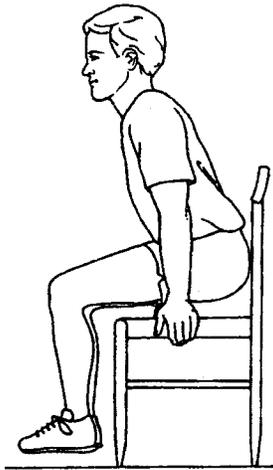


Figure A-6. Press-ups. (Redrawn from Wilk, K.E., Andrews, J.R., Arrigo, C.A., et al. [2001]: Preventive and Rehabilitative Exercises for the Shoulder and Elbow, 6th ed. Birmingham, AL, American Sports Medicine Institute.)

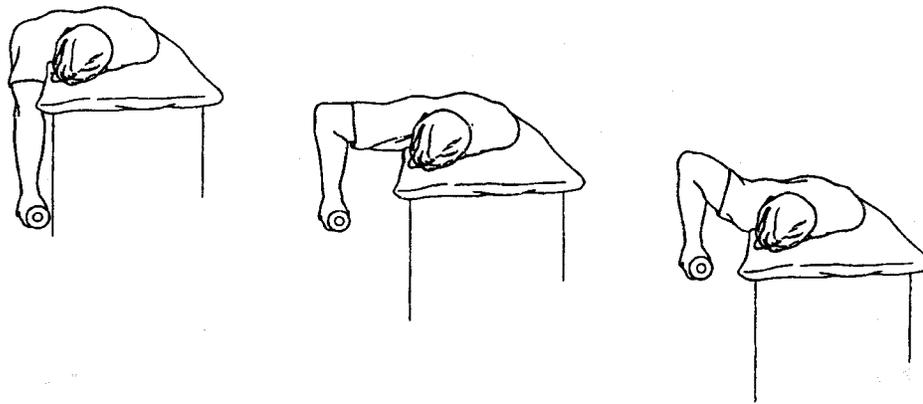


Figure A-7. Prone rowing. (Redrawn from Wilk, K.E., Andrews, J.R., Arrigo, C.A., et al. [2001]: Preventive and Rehabilitative Exercises for the Shoulder and Elbow, 6th ed. Birmingham, AL, American Sports Medicine Institute.)

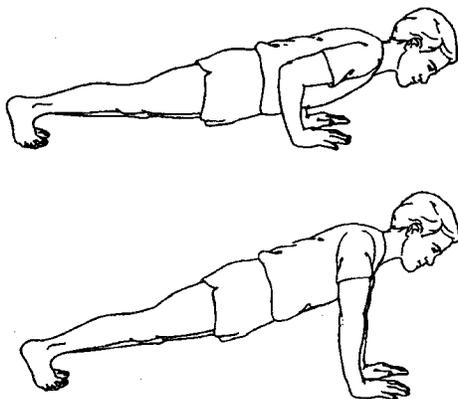


Figure A-8. Push-ups. (Redrawn from Wilk, K.E., Andrews, J.R., Arrigo, C.A., et al. [2001]: Preventive and Rehabilitative Exercises for the Shoulder and Elbow, 6th ed. Birmingham, AL, American Sports Medicine Institute.)

Elbow Flexion. With the arm against the side and the palm facing inward the athlete bends the elbow upward, turning the palm up as he or she progresses (Fig. A-9A). The athlete holds the position for 2 seconds and lowers the elbow slowly.

Elbow Extension. The athlete raises the involved arm overhead, with the uninvolved hand providing support at the elbow. The arm is straightened overhead (Fig. A-9B). The athlete holds the position for 2 seconds and lowers the arm slowly.

Wrist Extension. Supporting the forearm and with the palm facing downward, the athlete raises a weight in the hand as far as possible (Fig. A-10A). The athlete holds the position for 2 seconds and lowers the arm slowly.

Wrist Flexion. Supporting the forearm and with the palm facing upward, the athlete lowers a weight in the hand as far as possible and then curls it up as high as pos-

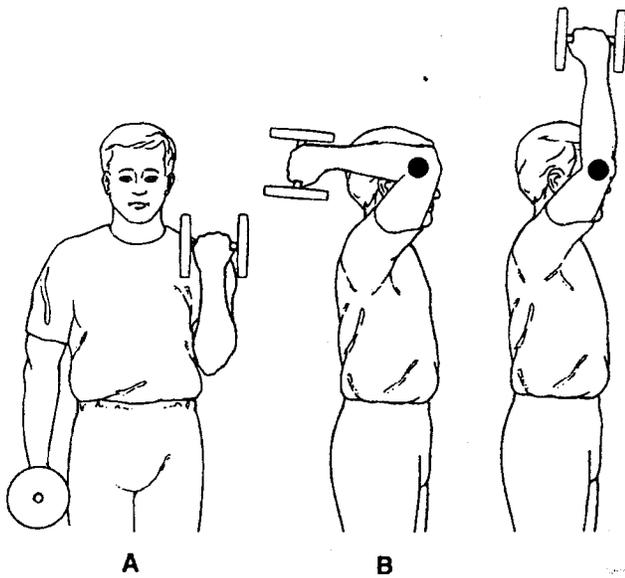


Figure A-9. A, Elbow flexion. B, Elbow extension. (Redrawn from Wilk, K.E., Andrews, J.R., Arrigo, C.A., et al. [2001]: Preventive and Rehabilitative Exercises for the Shoulder and Elbow, 6th ed. Birmingham, AL, American Sports Medicine Institute.)

sible (Fig. A-10B). The athlete holds the position for 2 seconds and lowers the arm slowly.

Supination. The athlete supports the forearm on a table, with the wrist in a neutral position. Using a weight or a hammer, the athlete rolls the wrist, taking the palm up. (Fig. A-10C). The athlete holds the position for 2 seconds, and the arm is returned to the starting position.

Pronation. The athlete supports the forearm on a table, with the wrist in a neutral position. Using a weight or hammer, the athlete rolls the wrist, taking the palm down (Fig. A-10D). The athlete holds the position for 2 seconds, and the arm is returned to the starting position.

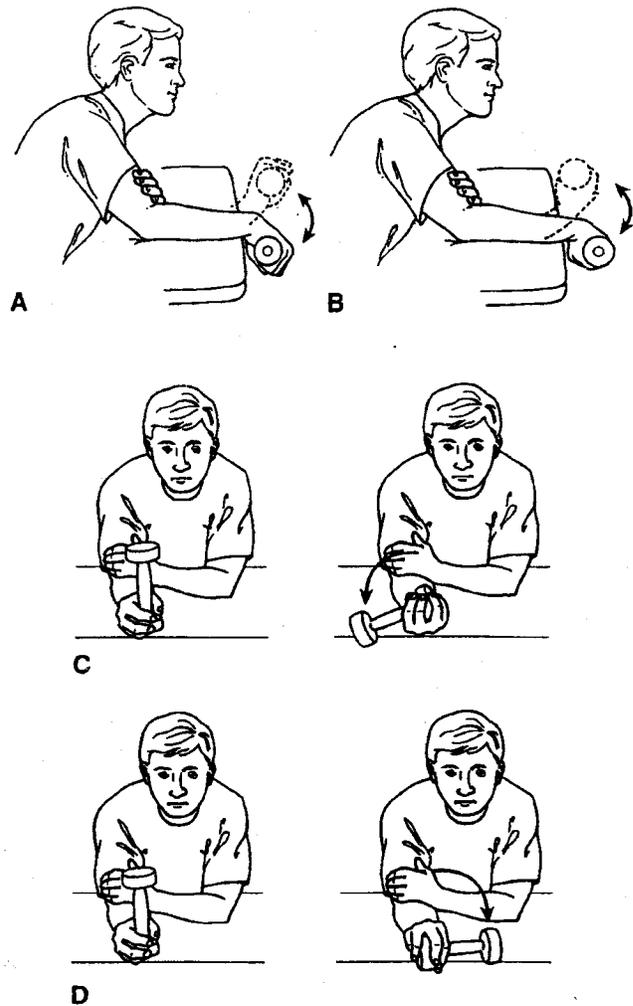
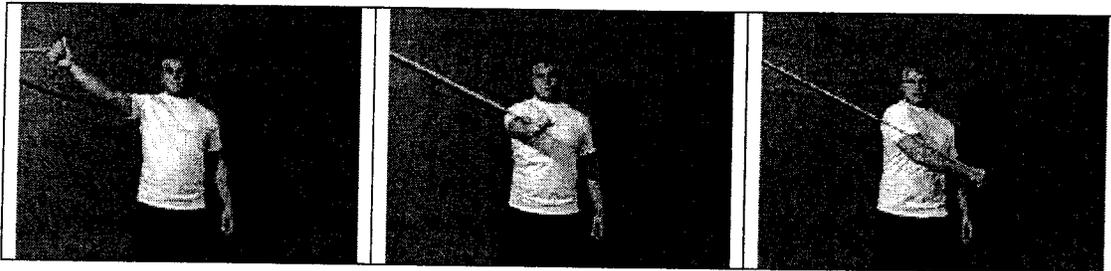


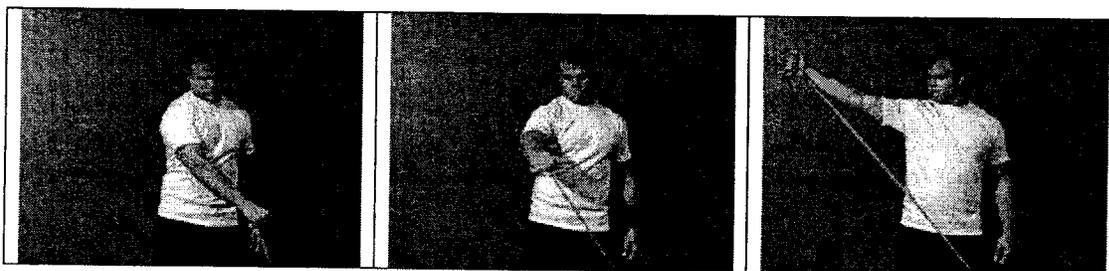
Figure A-10. A, Wrist extension. B, Wrist flexion. C, Wrist supination. D, Wrist pronation. (Redrawn from Wilk, K.E., Andrews, J.R., Arrigo, C.A., et al. [2001]: Preventive and Rehabilitative Exercises for the Shoulder and Elbow, 6th ed. Birmingham, AL, American Sports Medicine Institute.)

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Diagonal Pattern D2 Extension

Involved hand will grip tubing handle overhead and out to the side. Pull tubing down and across your body to the opposite side of leg. During the motion, lead with your thumb.



Diagonal Pattern D2 Flexion

Gripping tubing handle in hand of involved arm, begin with arm out from side 45 degrees and palm facing backward. After turning palm forward, proceed to flex elbow and bring arm up and over the uninvolved shoulder. Turn palm down and reverse to take arm back to starting position. This exercise should be done in a controlled manner.



External Rotation at 0 degrees Abduction

Stand with involved elbow fixed at side, elbow at 90 degrees and involved arm across front of body. Grip tubing handle while the other end of the tubing is fixed to a stationary object. Pull out with arm, keeping elbow at side. Return tubing slowly and in a controlled manner.



Internal Rotation at 0 degrees Abduction

Standing with elbow at side, fixed at 90 degrees and should rotated out. Grip tubing handle while other end of tubing is fixed to a stationary object. Pull arm across body, keeping elbow at side. Return tubing slowly and controlled.



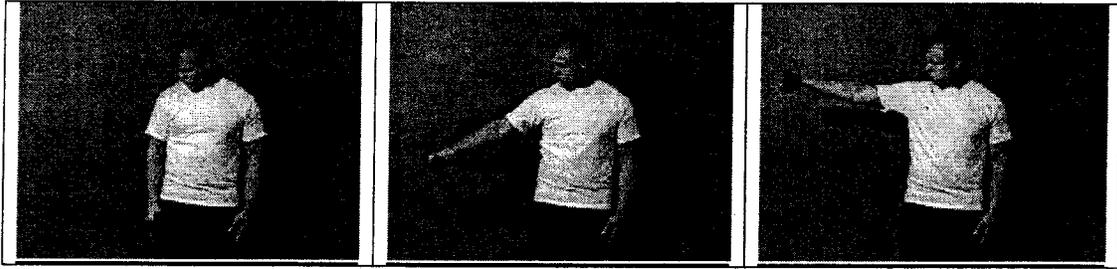
External Rotation at 90 degrees Abduction

Stand with shoulder abducted 90 degrees and elbow flexed 90 degrees. Grip tubing handle while the other end is fixed straight ahead, slightly lower than the shoulder. Keeping shoulder abducted, rotate the shoulder back, keeping elbow at 90 degrees. Return tubing and hand to start position.



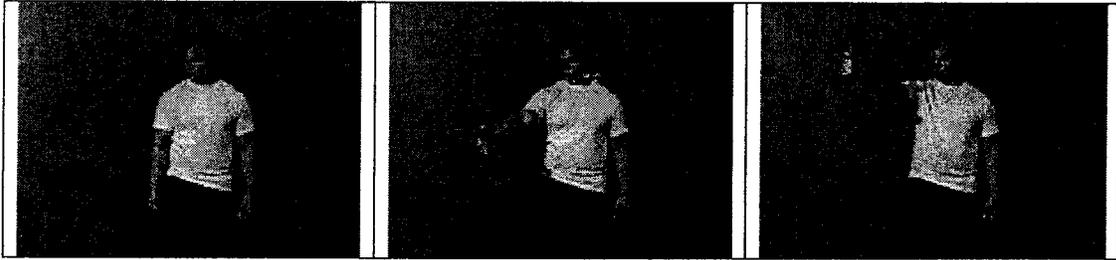
Internal Rotation at 90 degrees Abduction

Stand with shoulder abducted to 90 degrees, externally rotated 90 degrees and elbow bent 90 degrees. Keeping shoulder abducted, rotate shoulder forward, keeping elbow bent at 90 degrees. Return tubing and hand to start position.



Shoulder Abduction to 90 degrees

Stand with arm at side, elbow straight, and palm against side. Raise arm to the side, palm down, until arm reaches 90 degrees (shoulder level). Hold 2 seconds and lower slowly.



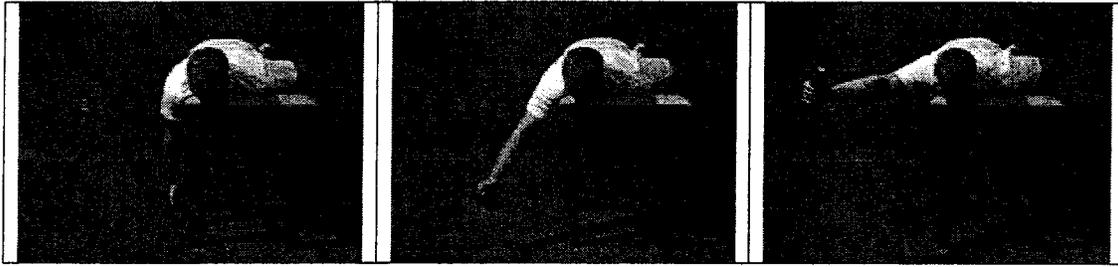
Scaption, Internal Rotation

Stand with elbow straight and thumb up. Raise arm to shoulder level at 30 degree angle in front of body. Do not go above shoulder height. Hold two seconds and lower slowly.



Prone Horizontal Abduction (Neutral)

Lie on table, face down, with involved arm hanging straight to the floor, palm facing down. Raise arm out to side, parallel to floor. Hold 2 seconds and lower slowly.



Prone Horizontal Abduction (Full External Rotation, 100 degrees Abduction)

Lie on table, face down, with involved arm hanging straight to the floor, thumb rotated up (hitchhiker position). Raise arm out to the side slightly in front of shoulder, parallel to the floor. Hold 2 seconds and lower slowly.



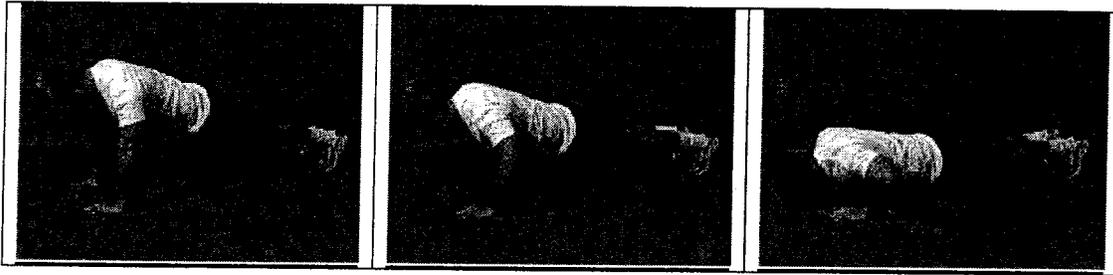
Press-Ups

Seated on a chair or table, place both hands firmly on the sides of the chair or table, palm down and fingers pointed outward. Hands should be placed equal with shoulders. Slowly push downward through the hands to elevate your body. Hold the elevated position for 2 seconds and lower slowly.



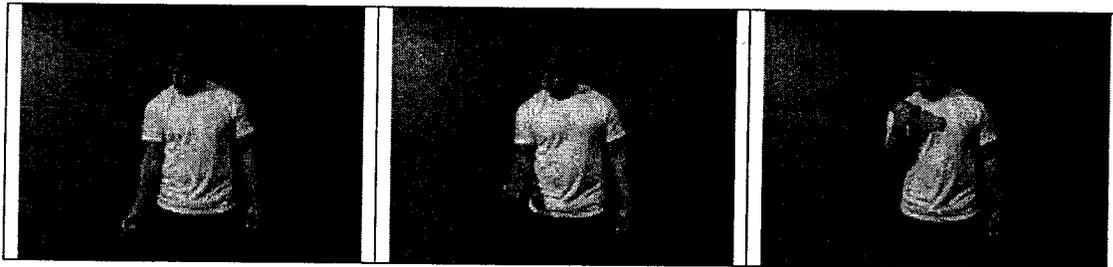
Prone Rowing

Lying on your stomach, with your involved arm hanging over the side of the table, dumbbell in hand and elbow straight. Slowly raise arm, bending elbow and bring dumbbell as high as possible. Hold at the top for 2 seconds, then slowly lower.



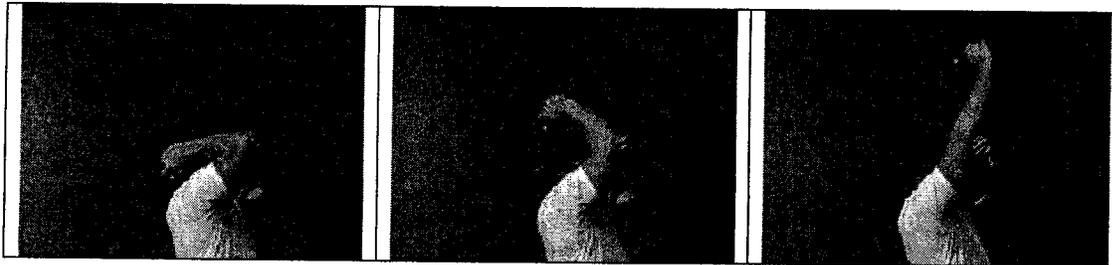
Push-Ups

Start in the down position. Place hands no more than shoulder width apart. Push up as high as possible, rolling shoulders forward after elbows are straight. Start with a push-up into wall, then gradually progress to tabletop and eventually to the floor as tolerable.



Elbow Flexion

Standing with arm against side and palm facing inward, bend elbow upward turning palm up as you progress. Hold 2 seconds and lower slowly.



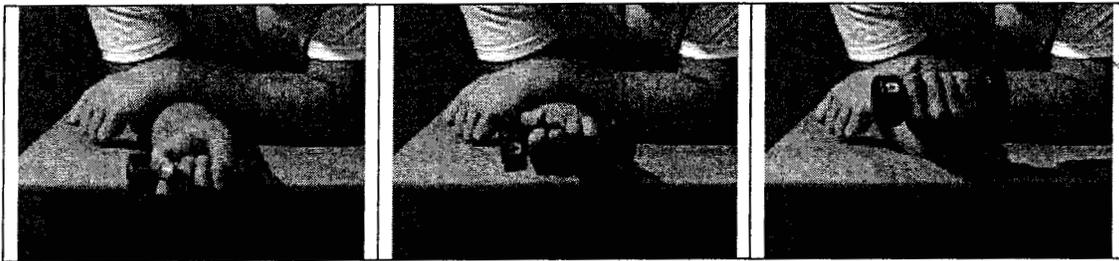
Elbow Extension (Abduction)

Raise involved arm overhead. Provide support at elbow from uninvolved hand. Straighten arm overhead. Hold 2 seconds, then lower slowly.



Wrist Extension

Supporting the forearm and with palm facing downward, raise weight in hand as far as possible. Hold 2 seconds, then lower slowly.



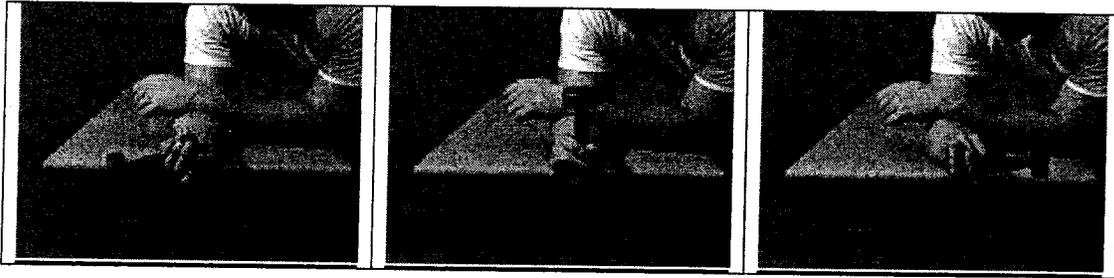
Wrist Flexion

Supporting the forearm and with palm facing upward, lower a weight in hand as far as possible, then curl it up as high as possible. Hold for 2 seconds and lower slowly.



Wrist Supination

With forearm supported on table with wrist in neutral position, use a weight or hammer to roll wrist to the palm up position. Hold for 2 seconds and return to starting position.



Wrist Pronation

Forearm should be supported on a table with the wrist in neutral position. Using a weight or hammer, roll wrist to the palm down position. Hold 2 seconds and return to starting position.