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| **S2. Prescribed exercises from CEBM Level V Studies – Expert Opinion** |
|  | **Case Studies** | **Clinical Commentaries** |
| **Upper Extremity Exercise** ≤ **90°** |
| **Exercise** | **Buteau, 2007[28]** | **Frizziero, 2012[29]** | **Leao Almeida, 2011[30]** | **Logerstedt, 2004[31]** | **Peters, 2007[32]** | **Watson, 2015[33]** | **Bonci, 1992[34]** | **Brewster, 1993[35]** | **Brumitt, 2009[36];Brumitt, 2005[37]** | **Burkhart, 2003[38]** | **Cools, 2008[39]; Cools, 2014[40]** | **Davies, 1993[41]** | **Kelley, 1995[42]** | **Kennedy, 2009[43]** | **Kibler, 2013[44];Kibler, 2001[45]; Kibler, 2012[46]** | **Lephart, 1995[47]; Lephart, 1996[48]** | **Manske, 2004[49]** | **Pappas, 1985[50]** | **Pezzullo, 1995[51]** | **Plancher, 1995[52]** | **Reinold, 2013[53]; Reinold, 2010[54]; Reinold, 2002[55]** | **Wilk, 2016[56]; Wilk, 2015[57]; Wilk, 2014[58]; Wilk, 2002[59]; Wilk, 2011[60]** |
| Scaption IR (empty can) |  |  |  |  |  |  | x | x |  |  |  | x | x |  |  |  |  | x |  |  |  | x |
| Scaption ER (full can) |  |  | x | x | x |  |  |  |  |  |  | x | x |  |  |  | x | x |  |  |  | x |
| Horizontal abduction neutral (upright/prone) |  |  |  |  |  |  |  |  |  | x |  |  | x |  | x |  |  | x |  |  |  |  |
| Horizontal abduction in ER (T’s) (prone/swiss ball) |  |  | x |  | x |  | x |  | x | x | x |  |  |  | x |  |  | x |  |  |  | x |
| Horizontal adduction (bench press, chest flys) |  |  |  |  |  |  |  | x |  |  |  |  |  |  | x | x |  |  |  | x | x |  |
| Shoulder adduction |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  | x |  |  |
| Shoulder abduction |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Internal rotation at neutral (standing) |  | x | x |  | x |  | x | x |  |  |  | x | x |  | x | x |  |  |  | x | x |  |
| External rotation at neutral (standing, sidelying) |  | x | x | x | x | x | x | x | x |  | x | x | x |  | x | x |  |  |  | x | x | x |
| 90/90 IR (standing) |  |  |  |  | x |  |  |  |  |  |  |  |  |  | x |  |  |  | x |  |  |  |
| 90/90 ER (standing/prone/kneel) |  |  |  |  | x |  | x |  | x | x | x | x | x |  | x |  |  | x | x | x | x | x |
| Forward flexion (upright/sidelying) |  |  |  |  |  |  |  |  |  |  | x |  | x |  |  |  |  |  |  |  | x |  |
| Shoulder extension (V’s) (standing/prone/swiss ball) |  | x | x |  | x |  | x | x |  | x | x |  | x |  | x |  |  |  |  | x |  | x |
| Scapular punches/seated table slide |  |  |  |  |  |  | x |  |  | x | x | x |  |  | x |  |  |  |  |  |  |  |
| Scapular PNF pattern |  |  |  | x |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  | x |
| Scapular depression |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Scapular retraction (robbery/row/W’s)(standing/prone/swiss ball) |  | x |  | x | x | x | x |  |  | x | x | x |  | x | x |  | x |  |  | x | x | x |
| Shrug |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |
| PNF Rhythmic Stabilization |  |  |  | x |  |  |  |  |  |  |  | x | x |  |  | x |  |  |  |  | x | x |
| Bodyblade IR/ER |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Upper Extremity Exercise > 90°** |
| Scaption ER (full can) |  |  |  |  |  |  | x | x |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| Scapular retraction (rowing) |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| D2 scapular pattern (manual) |  |  |  | x | x |  | x |  |  |  |  |  | x |  |  | x | x |  | x |  | x | x |
| Horizontal abduction neutral (prone) |  |  |  |  |  |  |  |  |  | x |  |  |  | x |  |  |  |  |  |  |  |  |
| Horizontal abduction in ER (Y’s) (swiss ball) |  |  |  | x |  |  |  |  |  | x | x |  |  |  | x |  |  |  |  |  | x | x |
| Shoulder dumps |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| Military press |  |  |  |  |  |  |  | x |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| Lat pull down |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |
| **Upper Extremity Exercise – Closed Chain** |
| Quadruped/tripod balancing |  |  |  | x |  |  |  |  |  |  |  | x |  |  |  | x |  |  |  |  | x | x |
| Push up progressions |  | x |  |  | x |  | x | x |  |  | x |  | x |  | x | x |  | x |  |  | x | x |
| Push up plus |  |  | x | x |  |  |  | x |  |  | x | x |  | x | x |  | x |  |  |  |  |  |
| Push up on unstable surface (physioball/medball/wobble board) |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  | x |
| Scapular Press Ups |  |  |  | x | x |  | x |  |  | x | x | x |  | x | x | x | x |  |  |  |  | x |
| Scapular clock |  |  |  |  |  |  |  |  |  | x |  |  |  |  | x |  | x |  |  |  | x | x |
| Wall slides |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  | x |  |
| Wall washes  |  |  |  |  |  |  |  |  |  | x |  |  |  |  | x |  |  |  |  |  |  |  |
| Profitter (all planes) |  |  |  |  |  |  |  |  |  |  |  | x | x |  |  |  |  |  |  |  |  |  |
| Upper extremity walking on plyobox “wheelbarrow” |  |  |  |  |  |  |  |  |  |  |  | x | x |  |  |  |  |  |  |  |  |  |
| **Upper Extremity Exercise – Unspecified** |
| Upper Body/Rowing Ergometer | x |  |  |  |  |  |  | x |  |  |  |  | x |  |  |  |  |  |  |  |  | x |
| Lower Trapezius |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |
| Elbow/Wrist/Hand |  |  |  |  |  | x |  |  |  |  |  |  | x |  | x |  |  |  |  | x | x | x |
| Comprehensive Bodyblade program with multiplanar, multidirectional progressions including > 90 | x |  | x |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |
| **Isokinetics** |
| Serratus punch |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |
| Seated 90/90 |  |  |  |  |  |  | x |  |  |  |  | x |  |  |  | x |  |  |  |  |  |  |
| Internal/external rotation > 200/sec |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Internal/external velocity spectrum (con/ecc) |  |  |  |  |  |  |  |  |  |  |  | x | x |  |  |  |  |  |  |  |  |  |
| D2 pattern |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  | x |  | x |  |  |  |  |
| PNF: functional diagonal |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PNF: primitive diagonal |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PNF: with elastic tubing |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Plyometrics** |
| Comprehensive plyometric ball tossing on mini trampoline with IR/ER progression |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Trunk rotation throw |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |
| Chest pass |  |  |  | x | x |  | x |  |  |  |  | x | x |  |  |  |  |  |  |  | x | x |
| 2 hand overhead throw |  |  |  |  | x |  | x |  |  |  |  | x | x |  | x |  |  |  |  |  | x | x |
| One-arm catch without return |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Throw and catch, elbow at side |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  | x |  |
| Supine self-toss |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |
| 90/90 catch and throw |  |  |  |  | x |  | x |  | x |  |  | x | x |  | x | x | x |  | x |  | x | x |
| 1 hand overhead throw |  |  |  |  |  |  | x |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |
| Wall dribbling |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x | x |
| Backward catch and throw |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  | x |  | x |  |
| 2 hand medball drill (non-throwing) |  |  |  |  |  |  |  |  |  |  | x |  |  |  | x |  |  |  |  |  |  |  |
| 1 hand medball drill (non-throwing) |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |
| Wall Push-up |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |
| IR/ER tubing (high speeds including 90/90) |  |  | x | x | x | x |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |
| Drop and catch (prone/sidelying) |  |  |  |  |  |  |  |  |  |  |  |  | x |  | x |  |  |  |  |  | x |  |
| D2 flexion/extension |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |
| **Kinetic Chain/Core/Lower Extremity** |
| Core/Trunk strengthening (prone/side bridging) |  |  | x |  |  |  |  | x |  |  | x |  |  | x | x |  | x |  |  |  | x | x |
| Alternating hand taps in prone on hands position |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Side plank with ER |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  | x |
| Three point plank with upper extremity movement (horizontal abduction/extension/row/scaption) |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lower extremity strengthening program |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x | x |
| Hip abduction |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| Hip adduction |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| Hip flexion |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| Step up/down |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| Reverse step up |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| Lunges |  |  |  |  |  |  |  | x |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| Lateral lunge with shoulder ER/abduction with resistance |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |
| Squat progression (double to single leg) |  |  |  |  |  |  |  | x |  |  |  |  |  | x | x |  |  |  |  |  |  |  |
| Single leg stance with row |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |
| Single leg stance with diagonal trunk rotation/scapular retraction (lawnmower) |  |  |  |  |  |  |  |  |  | x | x |  |  | x | x |  |  |  |  |  |  |  |
| Closed chain birddog |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |
| Shoulder extension with squat |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |
| Shoulder diagonal in single leg stance |  |  |  |  |  |  |  |  |  |  | x |  |  |  | x |  |  |  |  |  |  |  |
| Shoulder diagonal seated on swiss ball |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |
| Kneeling diagonal |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| **Sport Specific Training** |
| Functional biofeedback progression, simple to complex to sport specific (basketball) |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Single leg power position (baseball) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| Single leg cocked position (baseball) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| Lift lead leg pitch (baseball) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| Stride forward pitcher (baseball) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| Pitching trunk rotation (baseball) |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |
| Mirror throwing (throwers) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  | x |
| Thrower’s and Advanced Thrower’s Ten Program (overhead throwers) |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |
| Multi-phase Throwing program (throwers) |  |  |  | x |  | x |  | x |  |  |  |  | x |  |  | x |  | x | x |  | x | x |
| 90/90 resistance bands at high speed (throwers) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |
| Tennis specific positions with sport cord |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |
| Interval tennis program |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  |  |
| Shoulder diagonal in prone (swimming) |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  |  |
| Impulse Inertial Exercise (throwers) |  |  |  |  |  |  |  |  |  |  |  | x |  |  |  |  |  |  | x |  |  |  |
| General cardiovascular conditioning (all) |  |  |  |  |  |  |  | x |  |  |  |  | x |  |  |  |  |  |  |  | x | x |