# **Supplementary Table 2: Extracted data for studies with shoulder abduction data.**

Isometric (ISO) and isokinetic (IKO) data of concentric (Con) and Eccentric (Ecc) movement types. Age ranges (AR) included. Outcomes are relative to the described measurement unit; where available, effect sizes were extracted or calculated (Cohen's d).

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| --- | --- | --- | --- | --- |
| **Title**  | **Movement Type**  | **Measurement Unit**  | **Outcomes**  | **Effect Size (Cohen’s d)** |
| Kim, et al., 2009  | Isometric  | Nm  | Males:  AR: 40-49 = 102.0±27.5 AR: 50-59 = 97.1±16.7 AR: 60-69 = 85.3±18.6Females: AR: 40-49 = 54.9±10.8 AR: 50-59 = 56.9±12.8  AR: 60-69 = 49.0±10.8 | AR: 40-49 = 1.71 AR: 50-59 = 2.41 AR: 60-69 = 1.95  |
| Murray, et al., 1985  | Isometric  | kg-cm  | Males: Young 45° = 562±23 Old 45° = 426±21Females: Young 45° = 275±15 Old 45° = 222±16 | Young 45° = 12.48Old 45° = 9.71  |
| Chezar, et al., 2013  | Isometric  | Nm/kg  | Males:  AR: 30-39 = 102±35  AR: 40-49 = 110±35  AR: 50-59 = 122±43  AR: 60-69 = 89±35 Females:  AR: 30-39 = 53±17  AR: 40-49 = 63±23  AR: 50-59 = 57±25  AR: 60-69 = 53±17 | AR: 30-39 = 1.4 AR: 40-49 = 1.34AR: 50-59 = 1.52 AR: 60-69 = 1.03  |
| Lannersten, et al., 1993  | Isometric  | Nm  | Males: AR: 19-34 = 71.6±27.9  AR: 35-44 = 70.3±27.9  AR: 45-65 = 63.6±20.3Females: AR: 19-34 = 31.1±10.9  AR: 35-44 = 29.9±10.2  AR: 45-65 = 27.2±8.2 | AR: 19-34 = 1.45AR: 35-44 = 1.45 AR: 45-65 = 1.79   |
| Barnekow-Bergkvist, et al., 2007  | Isometric  | N, Nm  | Males: 1420.0±220.0Females: 940.0±210.0 | 1.52 |
| MacDonell and Keir, 2005  | Isometric  | Nm  | Males:  30° = 75.7±10 60° = 67.5±7.4 90° = 69.8±7.1Females:  30° = 41.9±4 60° = 44.5±3 90° = 39.6±3 | 30° = 3.38 60° = 3.11 90° = 4.25  |
| Faber, et al., 2006  | Isometric  | Nm  | Males: Young = 71  Middle Age = 73 Elderly = 69Females: Young = 32 Middle Age = 31 Elderly = 31 | N/A  |
| Meldrum, et al., 2007  | Isometric  | Kg  | Males:  AR: 20 (Right) = 19.9±12.8 AR: 20 (Left) = 18.6±10.1 AR: 25 (Right) = 20.2±11.9 AR: 25 (Left) = 19±10.1 AR: 30 (Right) = 20±11.4 AR: 30 (Left) = 18.8±10.1 AR: 35 (Right) = 19.6±11 AR: 35 (Left) = 18.4±10.1 AR: 40 (Right) = 19±10.6 AR: 40 (Left) = 17.8±10.1AR: 45 (Right) = 18.4±10.2 AR: 45 (Left) = 17.1±10.1 AR: 50 (Right) = 17.7±9.8 AR: 50 (Left) = 16.5±10.1 AR: 55 (Right) = 17±9.4 AR: 55 (Left) = 15.7±10.1 AR: 60 (Right) = 16.2±8.9 AR: 60 (Left) = 15±10.1 AR: 65 (Right) = 15.5±8.3 AR: 65 (Left) = 14.2±10.1Females:  AR: 20 (Right) = 11.2±7.8 AR: 20 (Left) = 10±7.1 AR: 25 (Right) = 11.6±6.9 AR: 25 (Left) = 10.3±6.3 AR: 30 (Right) = 11.4±6.4 AR: 30 (Left) = 10.1±5.7 AR: 35 (Right) = 10.9±5.9 AR: 35 (Left) = 9.7±5.3 AR: 40 (Right) = 10.4±5.6 AR: 40 (Left) = 9.1±4.9 AR: 45 (Right) = 9.7±5.2 AR: 45 (Left) = 8.5±4.6 AR: 50 (Right) = 9±4.8 AR: 50 (Left) = 7.8±4.2 AR: 55 (Right) = 8.3±4.3AR: 55 (Left) = 7.1±3.7 AR: 60 (Right) = 7.6±3.8 AR: 60 (Left) = 6.3±3.2 AR: 65 (Right) = 6.8±3.2 AR: 65 (Left) = 5.6±2.6 | AR: 20 (Right) = 0.68AR: 20 (Left) = 0.85AR: 25 (Right) = 0.72AR: 25 (Left) = 0.86AR: 30 (Right) = 0.75AR: 30 (Left) = 0.86AR: 35 (Right) = 0.79AR: 35 (Left) = 0.85AR: 40 (Right) = 0.81AR: 40 (Left) = 0.86AR: 45 (Right) = 0.85AR: 45 (Left) = 0.85AR: 50 (Right) = 0.89AR: 50 (Left) = 0.86AR: 55 (Right) = 0.93AR: 55 (Left) = 8.6AR: 60 (Right) = 0.97AR: 60 (Left) = 0.86AR: 65 (Right) = 1.05AR: 65 (Left) = 0.85  |
| VanHarlinger, et al., 2015  | Isometric  | Kg  | Males: AR: 20-24 = 15.2±4.5 AR: 25-29 = 19.3±3.7 AR: 30-34 = 18.3±6.4 AR: 35-39 = 14.8±3.7 AR: 40-44 = 19±4.1 AR: 45-49 = 14.7±4.7 AR: 50-54 = 16.4±6.4 AR: 55-59 = 18.5±5 AR: 60-64 = 15.1±2.8Females: AR: 20-24 = 9±2.1 AR: 25-29 = 8.6±3.4 AR: 30-34 = 7.5±3 AR: 35-39 = 8.8±3.5 AR: 40-44 = 8.8±3.4 AR: 45-49 = 10.3±4.2 AR: 50-54 = 7.9±3.7 AR: 55-59 = 8±2.6 AR: 60-64 = 7.8±2.9 | AR: 20-24 = 1.38AR: 25-29 = 2.89AR: 30-34 = 1.69AR: 35-39 = 1.62AR: 40-44 = 2.49AR: 45-49 = 0.94AR: 50-54 = 1.33AR: 55-59 = 2.10AR: 60-64 = 2.61   |
| Collins and O'Sullivan, 2018  | Isometric  | N  | Males:  87.8±21Females:  49.3±12.30 | 1.83  |
| Lorenzo and Nunez, 2021  | Isometric  | Kg  | Males:  1.61±0.83Females:  0.89±0.39 | 0.87  |
| Huberman, et al., 2020  | Isometric  | Ibs  | Males: 43.63±16.14Females:  47.09±16.19 | 0.21  |
| Holzbaur, et al., 2007  | Isometric  | Nm  | Males:  74.4±10.8Females:  34.9±5.4 | 2.55  |
| Westrick, et al., 2013  | Isometric  | N/kg  | Males: 0.35±0.08Females: 0.29±0.10 | 0.75  |
| Hughes, et al., 1999  | Isometric  | Nm  | Males (Abducted 30°): AR: 20-29 = 46±15 AR: 30-39 = 39±10 AR: 40-49 = 41±8 AR: 50-59 = 40±12 AR: 60+ = 30±14Males (Abducted 60°): AR: 20-29 = 40±14 AR: 30-39 = 34±8 AR: 40-49 = 37±10 AR: 50-59 = 37±10 AR: 60+ = 23±12Males (Abducted 90°): AR: 20-29 = 32±11 AR: 30-39 = 30±12 AR: 40-49 = 31±7 AR: 50-59 = 28±8 AR: 60+ = 22±11Females (Abducted 30°): AR: 20-29 = 23±9 AR: 30-39 = 26±9 AR: 40-49 = 25±8 AR: 50-59 = 24±5 AR: 60+ = 15±8Females (Abducted 60°):  AR: 20-29 = 17±6 AR: 30-39 = 22±9 AR: 40-49 = 18±6 AR: 50-59 = 19±7 AR: 60+ = 10±6Females (Abducted 90°):  AR: 20-29 = 15±5 AR: 30-39 = 19±8 AR: 40-49 = 14±6 AR: 50-59 = 14±7 AR: 60+ = 8±6 | Abducted 30°: AR: 20-29 = 1.53 AR: 30-39 = 1.3 AR: 40-49 = 2 AR: 50-59 = 1.33 AR: 60+ = 1.07 Abducted 60°: AR: 20-29 = 2.14AR: 30-39 = 1.5 AR: 40-49 = 1.9 AR: 50-59 = 1.8 AR: 60+ = 1.08 Abducted 90°: AR: 20-29 = 1.55 AR: 30-39 = 0.92 AR: 40-49 = 1.9 AR: 50-59 = 1.75 AR: 60+ = 1.27   |
| Magnusson, et al., 1995  | Isometric  | Nm/kg  | Males: Left = 0.56±0.05 Right = 0.56±0.05Females:  Left = 0.71±0.05 Right = 0.69±0.06 | Left = 3 Right = 2.17   |
| Guirelli, et al., 2021  | Isometric  | N/lg  | Males:  2.52±0.51Females:  1.73±0.39 | 1.55  |
| Douma, et al., 2014  | Isometric  | Nm  | Males:  AR: 20-29 = 172±48  AR: 30-39 = 181±38  AR: 40-49 = 173±43  AR: 50-59 = 178±39 Females:  AR: 20-29 = 115±19  AR: 30-39 = 116±26  AR: 40-49 = 119±28  AR: 50-59 = 114±22 | AR: 20-29 = 1.19AR: 30-39 = 1.71 AR: 40-49 = 1.26AR: 50-59 = 1.64  |
| Andrews, et al., 1996  | Isometric  | N  | Males: AR 50-59 = 237.9±55.5 AR 60-69 = 200.5±45.7Females: AR 50-59 = 135.2±24.4 AR 60-69 = 125±25.8 | AR 50-59 = 1.85AR 60-69 = 1.65   |
| Alizadehkhaiyat, et al., 2014  | Isometric  | N  | Males: 98.8±29.2Females: 60.1±13.0 |  |
| Backman, et al., 1995  | Isometric  | N  | Males: AR: 20-30 = 141±33  AR: 30-40 = 132±36  AR: 40-50 = 137±27  AR: 50-60 = 135±23  AR: 60-70 = 119±27Females: AR: 20-30 = 84±13  AR: 30-40 = 96±20  AR: 40-50 = 80±13  AR: 50-60 = 83±22 AR: 60-70 = 69±17 | AR: 20-30 = 1.73 AR: 30-40 = 1AR: 40-50 = 2.11AR: 50-60 = 2.26 AR: 60-70 = 1.85  |
| Marcondes, et al., 2019  | Isokinetic:60°/s180°/s  | Percent Body Mass  |  Males: 60°/s = 86.1±2.5 180°/s = 163.5±25.4Females: 60°/s = 71±11.9 180°/s = 110.1±18 | 60°/s = 6.04 180°/s = 2.10  |
| Cahalan, et al., 1989  | Isokinetic:60°/s180°/s300°/s  | N, Nm  | Males: N = 52±11.5 60°/s = 39±9 180°/s = 32±8  300°/s = 26±7.5Females: N = 27±6.5 60°/s = 19±4 180°/s = 12.5±4 300°/s = 7.5±3 | N = 0.1760°/s = 1.33180°/s = 2.44 300°/s = 2.47  |
| Shklar and Dvir, 1995  | Isokinetic:60°/s120°/s180°/s  | Nm  | Males: Con. 60° = 50.5±13 Con. 120° = 46.9±13.3 Con. 180° = 43.6±11.9 Ecc. 60° = 64.8±18.2 Ecc. 120° = 67.9±17.3 Ecc. 180° = 73.1±18.4Females: Con. 60° = 28.4±4.6 Con. 120° = 26.4±4.2 Con. 180° = 24.8±3.5 Ecc. 60° = 37.3±6.1 Ecc. 120° = 38.9±7.5 Ecc. 180° = 41.8±7.2 | Con. 60° = 1.7Con. 120° = 1.54Con. 180° = 37.8Ecc. 60° = 1.51Ecc.120° = 1.68Ecc. 180° = 1.70   |
| Ivey, et al., 1985  | Isokinetic:60°/s180°/s  | Foot-Pounds  | Males: Slow = 41.6±11.4 Fast = 31.2±10.3Females: Slow = 21.6±6.6 Fast = 15.5±5.1 | Slow = 1.75 Fast = 1.52   |
| Reid, et al., 1989  | Isokinetic: 60°/s  | Nm  | Males:  50±14Females: 23±5 | 1.93   |
| McMaster, et al., 1992  | Isokinetic:30°/s180°/s  | Foot-Pounds  | Males:  Con. 30° (Left) = 52.7±10.9 Con. 30° (Right) = 54±11.6 Con. 180° (Left) = 55.9±11.7 Con. 180° (Right) = 47.6±11.4Females:  Con. 30° (Left) = 40.3±7.1 Con. 30° (Right) = 39.9±6.4 Con. 180° (Left) = 38±5.8 Con. 180° (Right) = 39±6.6 | Con. 30° (Left) = 1.14 Con. 30° (Right) = 1.22Con. 180° (Left) = 1.53 Con. 180° (Right) = 0.75  |
| Sanchez, et al., 1999  | Isokinetic:60°/s120°/s  | Nm  | Males: 60°/s (Right) = 56.35±9.6  120°/s (Right) = 50.54±9.4  60°/s (Left) = 48.21±11.0 120°/s (Left) = 44.12±7.5Females:  60°/s (Right) = 25.00±4.2  120°/s (Right) = 23.98±3.8 60°/s (Left) = 28.66±4.0  120°/s (Left) = 26.28±4.2 | 60°/s (Right) = 3.27 120°/s (Right) = 2.83 60°/s (Left) = 1.78120°/s (Left) = 2.38 |
| Sanchez, et al. 2000  | Isokinetic:60°/s120°/s  | Nm  | Males: 60°/s (Right) = 56.35±9.6  120°/s (Right) = 50.54±9.4  60°/s (Left) = 52.28±10.7 120°/s (Left) = 47.75±10.5Females: 60°/s (Right) = 25.01±4.2 120°/s (Right) = 23.98±3.8  60°/s (Left) = 24.02±5.7  120°/s (Left) = 23.98±3.8 | 60°/s (Right) = 3.26120°/s (Right) = 2.8360°/s (Left) = 2.64 120°/s (Left) = 2.26  |
| VanMeeteren, et al., 2002  | Isokinetic:60°/s 120°/s 180°/s  | Nm  | Males: 63.15±17.1Females: 36.65±8.05 | 0.77  |
| Murgia, et al., 2018  | Isokinetic:60°/s90°/s  | Nm  | Males: Young 60°/s = 0.72±0.21 Young 90°/s = 0.72±0.21 Old 60°/s = 0.31±0.16 Old 90°/s = 0.29±0.16Females: Young 60°/s = 0.60±0.15 Young 90°/s = 0.61±0.11 Old 60°/s = 0.37±0.21 Old 90°/s = 0.34±0.18 | Young 60°/s = 0.57Young 90°/s = 0.52Old 60°/s = 0.29Old 90°/s = 0.28   |
| Mayer, et al., 1994  | Isometric; Isokinetic:Con. 300°/sCon. 240°/sCon. 180°/sCon. 60°/s Ecc. 60°/sEcc. 120°/sEcc. 180°/sEcc. 240°/s  | Nm  | Males: ISO. = 47±12 IKO. Con. 300° = 30±8 IKO. Con. 240° = 31±7 IKO. Con. 180° = 33±8 IKO. Con. 60° = 38±7 IKO. Ecc. 60° = 41±10 IKO. Ecc. 120° = 45±10 IKO. Ecc. 180° = 44±10 IKO. Ecc. 240° = 44±8Females: ISO. = 28±6 IKO. Con. 300° = 18±4 IKO. Con. 240° = 19±4 IKO. Con. 180° = 18±4 IKO. Con. 60° = 22±4 IKO. Ecc. 60° = 25±4 IKO. Ecc. 120° = 29±6 IKO. Ecc. 180° = 31±5 IKO. Ecc. 240° = 29±6 | ISO.: 1.58IKO. Con. 300° = 1.5IKO. Con. 240° = 1.4IKO. Con. 180° = 1.88IKO. Con. 60° = 2.29IKO. Ecc. 60° = 1.6IKO. Ecc. 120° = 1.6IKO. Ecc. 180° = 1.3IKO. Ecc. 240° = 1.88 |
| Danneskiold-Samsoe, et al., 2009  | Isometric; Isokinetic: 30°/s60°/s90°/s120°/s  | N, Nm  | Males (Nm):  AR: 20-29 = 46.0±9.3 (60 °/s), 45.7±9.9 (90 °/s), 44.1±10.1 (120 °/s) AR: 30-39 = 46.8±7.0 (60 °/s), 45.6±5.2 (90 °/s), 44.2±5.0 (120 °/s) AR: 40-49 = 42.4±8.1 (60 °/s), 41.0±8.2 (90 °/s), 39.2±6.8 (120 °/s) AR: 50-59 = 47.3±8.6 (60 °/s), 45.7±8.1 (90 °/s), 41.1±7.6 (120 °/s) AR: 60-69 = 38.4±10.2 (60 °/s), 36.2±10.1 (90 °/s), 34.3±7.3 (120 °/s) AR: 70-79 = 38.8±6.1 (60 °/s), 34.6±7.1 (90 °/s), 33.4±7.2 (120 °/s)Males (N):  AR: 20-29 = 60.2±14.0 AR: 30-39 = 59.1±8.0 AR: 40-49 = 54.5±14.2 AR: 50-59 = 59.1±9.6  AR: 60-69 = 47.9±11.4 AR: 70-79 = 49.3±11.3Females (Nm):  AR: 20-29 = 28.3±5.8 (60 °/s), 25.6±5.9 (90 °/s), 24.8±4.8 (120 °/s) AR: 30-39 = 28.9±7.8 (60 °/s), 27.2±7.5 (90 °/s), 26.2±7.0 (120 °/s) AR: 40-49 = 33.2±8.7 (60 °/s), 31.0±8.8 (90 °/s), 28.7±6.7 (120 °/s) AR: 50-59 = 28.3±5.3 (60 °/s), 26.2±5.2 (90 °/s), 26.1±4.2 (120 °/s) AR: 60-69 = 22.5±5.2 (60 °/s), 22.7±5.3 (90 °/s), 22.5±4.3 (120 °/s) AR: 70-79 = 21.4±4.4 (60 °/s), 21.0±3.7 (90 °/s), 21.1±4.3 (120 °/s) Females (N):  AR: 20-29 = 30.9±7.4  AR: 30-39 = 32.9±8.8 AR: 40-49 = 36.2±7.4 AR: 50-59 = 32.9±6.8  AR: 60-69 = 27.1±6.3 AR: 70-79 = 25.9±6.2 | Nm: AR: 20-29 = 1.90 (60 °/s), 2.03 (90 °/s), 1.91 (120 °/s)AR: 30-39 = 2.56 (60 °/s), 3.54 (90 °/s), 3.6 (120 °/s)AR: 40-49 = 1.14 (60 °/s), 1.22 (90 °/s), 1.54 (120 °/s)AR: 50-59 = 2.21 (60 °/s), 2.41 (90 °/s), 1.97 (120 °/s)AR: 60-69 = 1.56 (60 °/s), 1.34 (90 °/s), 1.62 (120 °/s) AR: 70-79 = 2.85 (60 °/s), 1.92 (90 °/s), 1.71 (120 °/s)N:AR: 20-29 = 2.09 AR: 30-39 = 3.28AR: 40-49 = 1.29 AR: 50-59 = 2.73AR: 60-69 = 1.82 AR: 70-79 = 2.07  |
| Harbo, et al., 2012  | Isometric; Isokinetic: 60°/s  | Nm  | Males:  AR: <30 = IKO: 57±12; ISO: 60±14 AR: 30-39 = IKO: 67±10; ISO: 70±9 AR: 40-49 = IKO: 63±10; ISO: 67±11 AR: 50-59 = IKO: 62±12; ISO: 64±14 AR: 60-69 = IKO: 57±11; ISO: 58±16Females: AR: <30 =IKO: 42±8; ISO: 43±13 AR: 30-39 = IKO: 40±9; ISO: 41±9 AR: 40-49 = IKO: 37±8; ISO: 38±7 AR: 50-59 = IKO: 39±7; ISO: 39±7 AR: 60-69 = IKO: 32±5; ISO: 31±8 | AR: <30 = IKO: 1.25; ISO: 1.21AR: 30-39 = IKO: 2.7; ISO: 3.22AR: 40-49 = IKO: 2.6; ISO: 2.64AR: 50-59 = IKO: 1.92; ISO: 1.79AR: 60-69 = IKO: 2.27; ISO: 1.69  |