# **Supplementary Table 5: Extracted data for studies with shoulder flexion 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)** |
| Murray, et al., 1985  | Isometric  | kg-cm  | Males: Young 0° = 1058±47 Young 45° = 566±24 Old 0° = 852±42 Old 45° = 478±23 Females: Young 0° = 514±17 Young 45° = 338±16 Old 0° = 384±29 Old 45° = 224±18  | Young 0° = 11.57Young 45° = 9.5Old 0° = 11.14Old 45° = 11.04  |
| Yates, et al., 1980  | Isometric  | N  | Males:  45° = 125.5±22 135° = 95.1±21Females:  45° = 59.8±19 135° = 44.1±14 | 45° = 2.98 135° = 2.43 |
| Lannersten, et al., 1993  | Isometric  | Nm  | Males:  AR: 19-34 = 52.7±13 AR: 35-44 = 51.7±12 AR: 45-65 = 46.8±10.7Females: AR: 19-34 = 26.5±5.6 AR: 35-44 = 29.4±6.2 AR: 45-65 = 26.8±6.1 | AR: 19-34 = 2.02 AR: 35-44 = 1.86AR: 45-65 = 1.87 |
| Barnekow-Bergkvist, et al., 2007  | Isometric  | N, Nm  | Males:  1420.0±220.0Females: 940.0±210.0 | 2.18      |
| MacDonell and Keir, 2005  | Isometric  | Nm  | Males: 30° = 86.9±7.1 60° = 88.5±5.6 90° = 79.3±6.9Females: 30° = 43.1±3.5 60° = 42.8±2.8 90° = 42.3±2.7 | 30° = 6.17 60° = 8.16 90° = 5.36  |
| VanHarlinger, et al., 2015  | Isometric  | Kg  | Males: AR: 20-24 = 19.6±4.6 AR: 25-29 = 22.4±4.7 AR: 30-34 = 22.8±5.9 AR: 35-39 = 20±4.9 AR: 40-44 = 23.9±3.9 AR: 45-49 = 18.3±4.4 AR: 50-54 = 18.6±6.28 AR: 55-59 = 20.3±4.6 AR: 60-64 = 18.4±3.7 Females: AR: 20-24 = 10.3±3.2 AR: 25-29 = 9.8±3.5 AR: 30-34 = 9.5±2.6 AR: 35-39 = 10.4±4.7 AR: 40-44 = 11.2±3.6 AR: 45-49 = 12.1±3.9 AR: 50-54 = 11±4 AR: 55-59 = 9.4±3.5 AR: 60-64 = 9.2±2.5 | AR: 20-24 = 2.02AR: 25-29 = 2.69AR: 30-34 = 2.25AR: 35-39 = 1.96AR: 40-44 = 3.26AR: 45-49 = 1.41AR: 50-54 = 1.21AR: 55-59 = 2.37AR: 60-64 = 2.49 |
| Ferreira, et al., 2020  | Isometric  | Nm/kg  | Male:  Right = 0.83±0.12 Left = 0.82±0.13Female: Right = 0.72±0.09 Left = 0.62±0.08 | Right = 0.92Left = 1.54     |
| Huberman, et al., 2020  | Isometric  | Ibs  |  Male: 36.93±10.82Female:  39.39±10.85 | 0.23   |
| Westrick, et al., 2013  | Isometric  | N/kg  | Males: 0.12±0.03 Females: 0.10±0.03 | 0.67 |
| Hughes, et al., 1999  | Isometric  | Nm  | Males:Flexed 30°:  AR: 20-29 = 63±14 AR: 30-39 = 55±15 AR: 40-49 = 52±11 AR: 50-59 = 45±9 AR: 60+ = 45±12Flexed 60°:  AR: 20-29 = 50±11 AR: 30-39 = 44±11 AR: 40-49 = 43±8 AR: 50-59 = 35±9 AR: 60+ = 36±11Flexed 90°:  AR: 20-29 = 47±16 AR: 30-39 = 41±14 AR: 40-49 = 38±8 AR: 50-59 = 24±13 AR: 60+ = 28±13Females:Flexed 30°:  AR: 20-29 = 36±15 AR: 30-39 = 37±13 AR: 40-49 = 26±11 AR: 50-59 = 23±6 AR: 60+ = 16±7Flexed 60°:  AR: 20-29 = 33±14 AR: 30-39 = 33±13 AR: 40-49 = 20±10 AR: 50-59 = 20±5 AR: 60+ = 14±5Flexed 90°:  AR: 20-29 = 26±13 AR: 30-39 = 26±9 AR: 40-49 = 16±9 AR: 50-59 = 16±6 AR: 60+ = 12±6 | Flexion: Flexed 30°: AR: 20-29 = 1.93AR: 30-39 = 1.20AR: 40-49 = 2.36AR: 50-59 = 2.44AR: 60+ = 2.42Flexed 60°: AR: 20-29 = 1.55AR: 30-39 = 1AR: 40-49 = 2.88AR: 50-59 = 1.67AR: 60+ = 2) Flexed 90°: AR: 20-29 = 1.31AR: 30-39 = 1.07AR: 40-49 = 2.75AR: 50-59 = 0.62AR: 60+ = 1.23  |
| Pontillo and Sennett, 2020  | Isometric  | kg  | Males: 10.7±3.5 Females: 8±2.5 | 0.77  |
| Andrews, et al., 1996  | Isometric  | N  | Males: AR: 50-59 = 267.7±46 AR: 60-69 = 231.8±42.4 Females: AR: 50-59 = 161.6±30.4 AR: 60-69 = 147.5±30.9  | AR: 50-59 = 2.31AR: 60-69 = 1.99   |
| Busko & Gajewski, 2011  | Isometric  | Nm  | Males:  279.55±19.90Females:  163.95±44.8 | 5.81 |
| Alizadehkhaiyat, et al., 2014  | Isometric  | N  | Males: 105.2±25.6 Females: 63.0±12.4 | 1.65  |
| Marcondes, et al., 2019  | Isokinetic:60°/s180°/s  | Percent Body Mass  | Males: 60°/s: 102.3±7.4 180°/s: 172.1±17.9Females: 60°/s: 72.4±8.2 180°/s: 112.9±20.2 | 60°/s = 4.04180°/s = 3.31   |
| Cahalan, et al., 1991  | Isokinetic:60°/s180°/s300°/s  | N, Nm  | Males: N = 63±17.5 60°/s = 49±11.5 180°/s = 42±11 300°/s = 34.5±11Females: N = 27±8.5 60°/s 22±5  180°/s = 16±5.5  300°/s = 11.5±4.5 | N = 2.0660°/s = 2.35 180°/s = 2.36 300°/s = 2.09   |
| Shklar and Dvir, 1995  | Isokinetic:60°/s120°/s180°/s  | Nm  | Males: Con. 60°/s = 61.2±13.3 Con. 120°/s = 57.1±9.8 Con. 180°/s = 52.8±10.3 Ecc. 60°/s = 72.4±18 Ecc. 120°/s = 75.2±18.4 Ecc.180°/s = 77.1±18.1Females: Con. 60°/s = 36.5±6.1 Con. 120°/s = 35.5±6.3 Con. 180°/s = 32.3±5.7 Ecc. 60°/s = 43.1±7.1 Ecc. 120°/s = 45.7±8.9 Ecc. 180°/s = 47.7±8.7 | Con. 60°/s = 1.86Con. 120°/s = 2.20Con. 180°/s = 1.99Ecc. 60°/s = 1.63Ecc. 120°/s = 1.60Ecc. 180°/s = 1.62   |
| Koski and McGill, 1994  | Isokinetic: 50°/s  | Nm  | Males:  Peak Con. = 56.0±13.1 Peak Ecc. = 83.9±18.1 Ecc. 0° = 59.2±20.0 Con. 45° = 46.9±11.7 Ecc. 45° = 75.3±16.3Females:  Peak Con. = 29.0±5.86 Peak Ecc. = 43.4±10.4 Ecc. 0° = 27.0±9.06 Con. 45° = 25.8±5.33 Ecc. 45° = 38.6±10.7 | Peak Con. = 2.06 Peak Ecc. = 2.24 Ecc. 0° = 1.61 Con. 45° = 1.80 Ecc. 45° = 2.25  |
| Khalaf and Parnianpour, 2001  | Isokinetic: 10°/s50°/s100°/s150°/s200°/s250°/s  | Nm  | Males:  10°/s = 69.91±10.21 50°/s = 58.62±11.45 100°/s = 43.79±8.58 150°/s = 39.17±7.93 200°/s = 36.84±7.51 250°/s = 34.44±8.09Females:  10°/s = 30.91±7.74 50°/s = 24.87±8.35 100°/s = 18.44±5.29 150°/s = 16.01±5 200°/s = 13.71±4.24 250°/s = 12.33±3.08 | 10°/s = 3.82 50°/s = 2.95100°/s = 2.95 150°/s = 2.92 200°/s = 3.08 250°/s = 2.73   |
| Murgia, et al., 2018  | Isokinetic: 60°/s90°/s  | Nm  | Males: Young 60°/s = 0.86±0.22 Young 90°/s = 0.81±0.13 Old 60°/s = 0.42±0.21 Old 90°/s = 0.42±0.11Females: Young 60°/s = 0.50±0.13 Young 90°/s = 0.58±0.14 Old 60°/s = 0.36±0.07 Old 90°/s = 0.28±0.17 | Young 60°/s = 1.64Young 90°/s = 1.77Old 60°/s = 0.29Old 90°/s = 1.27   |
| Mayer, et al., 1994  | Isometric; Isokinetic: Con. 300°/sCon. 240°/sCon. 180°/sCon. 60°/s Ecc. 60°/s Ecc. 120°/s Ecc. 180°/s Ecc. 240°/s  | Nm  | Males: ISO. = 68±18 IKO. Con. 300°/s = 39±9 IKO. Con. 240°/s = 42±9 IKO. Con. 180°/s = 41±8 IKO. Con. 60°/s = 41±8 IKO. Ecc. 60°/s = 56±13 IKO. Ecc. 120°/s = 60±14 IKO. Ecc. 180°/s = 56±11 IKO. Ecc. 240°/s = 52±8Females: ISO. = 45±13 IKO. Con. 300°/s = 24±5 IKO. Con. 240°/s = 24±5 IKO. Con. 180°/s = 25±5 IKO. Con. 60°/s = 29±5 IKO. Ecc. 60°/s = 32±6 IKO. Ecc. 120°/s = 40±13 IKO. Ecc. 180°/s = 40±2 IKO. Ecc. 240°/s = 34±2 | ISO. = 1.28IKO. Con. 300°/s = 1.67IKO. Con. 240°/s = 2IKO. Con. 180°/s = 2IKO. Con. 60°/s = 1.5IKO. Ecc. 60°/s = 1.85IKO. Ecc. 120°/s = 1.43 IKO. Ecc. 180°/s = 1.45IKO. Ecc. 240°/s = 2.25   |
| Danneskiold-Samsoe, et al., 2009  | Isometric;Isokinetic: 30°/s60°/s90°/s120°/s  | N, Nm  | Males (Nm):  AR: 20-29 = 51.8±10.6 (60°/s), 50.9±12.4 (90°/s), 49.6±14.8 (120°/s)  AR: 30-39 = 54.7±7.3 (60°/s), 54.6±8.1 (90°/s), 52.9±7.2 (120°/s)  AR: 40-49 = 49.5±9.3 (60°/s), 48.0±8.0 (90°/s), 46.7±9.7 (120°/s)  AR: 50-59 = 48.4±9.1 (60°/s), 47.3±8.8 (90°/s), 43.9±6.4 (120°/s) AR: 60-69 = 41.9±7.6 (60°/s), 41.6±8.4 (90°/s), 38.6±9.6 (120°/s)  AR: 70-79 = 44.1±8.5 (60°/s), 41.9±6.3 (90°/s), 41.7±6.8 (120°/s)Males (N):  AR: 20-29 = 63.0±15.8  AR: 30-39 = 58.5±7.4  AR: 40-49 = 58.0±13.6  AR: 50-59 = 58.7±10.6  AR: 60-69 = 53.9±10.5  AR: 70-79 = 53.2±8.6Females **(**Nm):  AR: 20-29 = 30.1±6.5 (60°/s), 27.6±4.3 (90°/s), 26.6±5.2 (120°/s)  AR: 30-39 = 31.7±7.6 (60°/s), 29.3±7.1 (90°/s), 27.0±5.9 (120°/s)  AR: 40-49 = 33.8±7.1 (60°/s), 30.5±6.2 (90°/s), 29.5±6.0 (120°/s)  AR: 50-59 = 29.1±6.0 (60°/s), 26.8±5.6 (90°/s), 25.8±4.6 (120°/s)  AR: 60-69 = 26.9±5.3 (60°/s), 24.7±4.0 (90°/s), 24.1±4.3 (120°/s)  AR: 70-79 = 24.3±5.6 (60°/s), 22.7±4.6 (90°/s), 22.2±4.7 (120°/s)Females (N):  AR: 20-29 = 30.0±6.5 AR: 30-39 = 34.3±9.7 AR: 40-49 = 35.0±7.3  AR: 50-59 = 32.0±6.9  AR: 60-69 = 26.6±5.4  AR: 70-79 = 26.7±7.1 | Nm:AR: 20-29 = 2.05 (60°/s), 1.88 (90°/s), 1.55 (120°/s)AR: 30-39 = 3.15 (60°/s), 3.12 (90°/s), 3.59 (120°/s)AR: 40-49 = 1.69 (60°/s), 2.19 (90°/s), 1.77 (120°/s)AR: 50-59 = 2.12 (60°/s), 2.33 (90°/s), 2.83 (120°/s) AR: 60-69 = 1.97 (60°/s), 2.01 (90°/s), 1.51 (120°/s) AR: 70-79 = 2.33 (60°/s), 3.05 (90°/s), 2.87 (120°/s)N:AR: 20-29 = 2.09 AR: 30-39 = 3.27 AR: 40-49 = 1.69 AR: 50-59 = 2.51AR: 60-69 = 2.6 AR: 70-79 = 3.08  |