Table 1

Physiological cross sectional area (PCSA in cm2) of the neck muscles compared with other studies and models.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Muscle (part)  Subjects |  | Kamibayashi and Richmond (1998)   * Average (SD)   10 | Van der Horst (2002) (model) | Van Ee et al. (2000) ◊  6 |  | Hedenstierna (2008) (model) □  1 |  | This study ◊  (#elements)  1 |  |
|  | 1 M. iliocostalis cervicis |  | – | – | 1.04 |  | 1 |  | 0.426 (3) |  |
|  | 2 M. longissimus capitis |  | – | 0.98 | 0.98 |  | 2.5 |  | 0.750 (6) |  |
|  | 3 M. longissimus cervicis |  | – | 1.49 | 1.49 |  | – |  | 1.586 (8) |  |
|  | 4 M. intercostalis cervicis |  | – | – | – |  | – |  | 0.244 (1) |  |
|  | 5 M. interspinalis cervicis |  | – | – | – |  | – |  | 0.809 (5) |  |
|  | 6 M. intertransversarii anterior cervicis |  | – | – | – |  | – |  | 1.053 (6) |  |
|  | 7 M. intertransversarii posterior cervicis |  | – | – | – |  | – |  | 1.064 (6) |  |
|  | 8 M. levator scapulae |  | 2.18 (0.80) | 3.12 | 3.12 |  | 3.1 |  | 2.443 (4) |  |
|  | 9 M. longus capitis |  | 0.92 (0.35) | 1.37 | 1.37 |  | 1.4 |  | 0.892 (4) |  |
|  | 10 M. longus colli, craniolateral part |  | – | 2.74t | – |  | 2.1 |  | 0.176 (2) |  |
|  | 11 M. longus colli, medial part |  | – | – | – |  | – |  | 0.765 (5) |  |
|  | 12 M. multiﬁdius cervicis |  | – | 4.5† | – |  | 1.3 |  | 4.426 (10)& |  |
|  | 13 M. obliquus capitis inferior |  | 1.29 (0.54) | – | 1.95 |  | 1.9 |  | 1.713 (1) |  |
|  | 14 M. obliquus capitis superior |  | 1.03 (0.46) | – | 0.88 |  | 0.9 |  | 0.922 (1) |  |
|  | 15 M. omohyoid venter inferior |  | – | 2.35 | 0.75 |  | 2.3 |  | 0.444 (1) |  |
|  | 16 M. omohyoid venter superior |  | – | – | – |  | – |  | 0.275 (2) |  |
|  | 17 M. sternohyoid |  | – | – | 0.58 |  | – |  | 0.341 (2) |  |
|  | 18 M. sternothyroid |  | – | – | 0.65 |  | – |  | 0.514 (2) |  |
|  | 19 M. thyrohyoid |  | – | – | 0.37 |  | – |  | 0.604 (1) |  |
|  | 20 M. rectus capitis anterior |  | – | – | – |  | 0.7 |  | 0.080 (1) |  |
|  | 21 M. rectus capitis lateralis |  | – | – | – |  | 0.7 |  | 0.783 (1) |  |
|  | 22 M. rectus capitis posterior major |  | 0.93 (0.33) | – | 1.68 |  | 1.7 |  | 0.541 (1) |  |
|  | 23 M. rectus capitis posterior minor |  | 0.50 (0.19) | – | 0.92 |  | 0.9 |  | 0.903 (1) |  |
|  | 24 M. rhomboideus minor |  | 5.84 (2.77)\* | – | 1.02 |  | – |  | 0.956 (2) |  |
|  | 25 M. scalenus anterior |  | 1.45 (1.23) | 1.88 | 1.88 |  | 1.9 |  | 0.821 (3) |  |
|  | 26 M. scalenus medius |  | 2.00 (0.73) | 1.36 | 1.36 |  | 1.4 |  | 1.841 (7) |  |
|  | 27 M. scalenus posterior |  | 1.55 (0.90)b | 1.05 | 1.05 |  | 1.1 |  | 0.892 (2) |  |
|  | 28 M. semispinalis capitis |  | 5.40 (1.30) | 4.5 | 5.52 |  | 5.5 |  | 4.267 (9) |  |
|  | 29 M. semispinalis cervicis |  | – | 3.665 | 3.06 |  | 3.1 |  | 3.683 (10) |  |
|  | 30 M. serratus posterior superior |  | – | – | – |  | – |  | 1.974 (4) |  |
|  | 31 M. splenius capitis |  | 4.26 (1.04) | 3.09 | 3.09 |  | 3.1 |  | 2.500 (7) |  |
|  | 32 M. splenius cervicis |  | – | 2.5 | 1.43 |  | 1.4 |  | 0.990 (2) |  |
|  | 33 M. sternocleidomastoideus |  | 3.72 (0.91) | 4.92 | 4.92 |  | 4.9 |  | 2.901 (4) |  |
|  | 34 M. trapezius ● |  | – | 3.77§ | 13.73 |  | – |  | – |  |
|  | pars transversus‡ (C7–C6) |  | – | – | – |  | 10 |  | 4.950 (2) |  |
|  | pars descendens (Cranium, C5–C1) |  | – | – | – |  | – |  | 3.540 (4) |  |
|  | clavotrapezius |  | 1.96 (0.62) | – | – |  | – |  | – |  |
|  | acromiotrapezius |  | 10.77 (2.38) | – | – |  | – |  | – |  |
|  | Total PCSA |  | 36.41 | 43.29 | 52.84 |  | 53.4 |  | 51.1 (129) |  |

The van der Horst (2002) model is mainly based on dissection data in Van Ee et al. (2000). The Hedenstierna (2008) model is mainly based on volunteer MRI data.