Table M1.1 Subject information

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Subject | Gender | Height(m) | Mass(kg) | Age(years) | Limb length (mm)a | Femur length (mm)a | Tibia length (mm)a | Pelvis width  (mm)b |
| M1 | Male | 1.92 | 85.0 | 27 | 910 | 433 | 477 | 245 |

a. Limb length is calculated as the sum of femur and tibia lengths of the right leg: femur length is measured as the distance from the trochanter major to the midpoint of the femoral epicondyles; tibia length is measured as the distance from the midpoint of the femoral epicondyles to the medial malleolus.

b. Pelvis width is measured as the distance from the right anterior superior iliac spine to the left anterior superior iliac spine.

Table M1.2 Bony landmark coordinates, expressed with respect to the global frame

|  |  |  |  |
| --- | --- | --- | --- |
| **Bony Landmark** | **Position in mm** | | |
| **Name** | **X** | **Y** | **Z** |
| **Pelvis** |  |  |  |
| Right anterior superior iliac spine (RASIS) | 52.9 | -1.2 | 115.3 |
| Left anterior superior iliac spine (LASIS) | 48.3 | 0.2 | -129.7 |
| Right posterior superior iliac spine (RPSIS) | -98.9 | 7.1 | 39.8 |
| Left posterior superior iliac spine (LPSIS) | -99.4 | 8.3 | -54.1 |
| Right pubic tubercle (RPT) | 48.4 | -114.5 | 11.1 |
| Left pubic tubercle (LPT) | 48.0 | -114.6 | -20.5 |
| **Femur** |  |  |  |
| Right trochanter major (RTM) | -29.1 | -118.4 | 147.7 |
| Right lateral femoral epicondyle (RLFE) | -20.9 | -548.5 | 157.4 |
| Right medial femoral epicondyle (RMFE) | -15.8 | -551.4 | 59.7 |
| **Tibia** |  |  |  |
| Right lateral tibial epicondyle (RLTE) | -10.4 | -596.4 | 161.0 |
| Right medial tibial epicondyle (RMTE) | -20.6 | -600.3 | 71.7 |
| Right tibial tuberosity (RTT) | 24.3 | -614.1 | 128.3 |
| Right lateral malleolus (RLM) | 15.0 | -1005.9 | 102.3 |
| Right medial malleolus (RMM) | -24.5 | -1024.4 | 154.7 |
| Right fibular head (RFH) | -38.9 | -627.7 | 168.8 |
| **Foot** |  |  |  |
| Right navicular (RNAV) | 52.7 | -1028.9 | 118.0 |
| Right distal 1st metatarsal (RMET1\_DIST) | 139.2 | -1089.1 | 93.8 |
| Right proximal 1st metatarsal (RMET1\_PROX) | 85.2 | -1053.2 | 100.8 |
| Right distal 5th metatarsal (RMET5\_DIST) | 137.8 | -1096.8 | 164.5 |
| Right proximal 5th metatarsal (RMET5\_PROX) | 58.4 | -1073.4 | 167.0 |
| Right big toe (RBIG\_TOE) | 184.7 | -1085.4 | 101.1 |

Table M1.3 Tibiofemoral contact, expressed with respect to the global frame

|  |  |  |  |
| --- | --- | --- | --- |
| **Tibiofemoral Contact Point** | **Position in mm** | | |
| **Name** | **X** | **Y** | **Z** |
| Lateral contact point | -17.8 | -581.5 | 144.1 |
| Medial contact point | -12.8 | -589.5 | 78.5 |

Table M1.4 Joint centres and axes, expressed with respect to the global frame

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Joint** | **Rotation centre in mm** | | | **Rotation axis** | | | **Error**  **in mm**a |
| **Name** | **X** | **Y** | **Z** | **X** | **Y** | **Z** |
| Hip | -5.3 | -89.8 | 87.5 | - | - | - | 0.5 |
| Knee | -10.6 | -550.6 | 107.9 | -0.09 | 0.15 | 0.98 | 1.6 |
| Ankle | 0.4 | -1018.1 | 125.2 | - | - | - | 2.3 |

a. Error is the root mean squared distance between a set of 50 digitised points on the articular surface to the surface of the fitted object.

Table M1.5 Wrapping object parameters, expressed with respect to the global frame

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Segment** | **An arbitrary point on the central axis in mm** | | | **Centre axis direction** | | | **Radius**  **in mm** | **Error**  **in mm**a |
| **X** | **Y** | **Z** | **X** | **Y** | **Z** |
| Pelvis | -8.2 | -96.3 | 54.5 | -0.22 | 0.18 | 0.96 | 43.0 | 1.2 |
| Femur | -25.3 | -564.2 | 94.9 | 0.05 | 0.11 | 0.99 | 28.0 | 1.3 |

a. Error is the root mean squared distance between a set of 50 digitised points on the bone surface to the cylindrical surface.

Table M1.6 Muscle parameters

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Muscle** | | **Muscle volume (,cm3)** | **Muscle length (, cm)** | **PCSA**  **(cm2)** | **Fibre length to muscle length ratio (** | **Pennation angle**  **(*θ*, °)** | **Sarcomere length**  **(, µm)** |
| **Full name** | **Abbreviation** |
| Adductor Brevis | Add.brev. | 131.64 | 14.83 | 11.26 | 0.68 | 6.10 | 2.91 |
| Adductor Longus | Add.long. | 202.39 | 22.84 | 14.79 | 0.50 | 7.10 | 3.00 |
| Adductor Magnus | Add.magn. | 703.89 | 34.22 | 58.58 | 0.39 | 15.50 | 2.19 |
| Biceps Femoris Caput Longum | Bic.fem.CL. | 261.5 | 30.94 | 31.75 | 0.28 | 11.60 | 2.35 |
| Biceps Femoris Caput Breve | Bic.fem.CB. | 125.38 | 28.03 | 6.8 | 0.49 | 12.30 | 3.31 |
| Extensor Digitorum Longusa | Ext. dig. long. | 86.87 | 39.49 | 7.28 | 0.24 | 10.80 | 3.12 |
| Extensor Hallucis Longusa | Ext. hal. long. | 42.09 | 39.49 | 2.64 | 0.31 | 9.40 | 3.24 |
| Flexor Digitorum Longus | Flex. dig. long. | 38.51 | 27.12 | 8.5 | 0.16 | 13.60 | 2.56 |
| Flexor Hallucis Longus | Flex. hal. long. | 97.61 | 25.03 | 19.87 | 0.20 | 16.90 | 2.37 |
| Gastrocnemius Lateral | Gastrocn. (lat.) | 188.96 | 26.21 | 24.32 | 0.27 | 12.00 | 2.71 |
| Gastrocnemius Medial | Gastrocn. (med.) | 324.19 | 29.3 | 55.89 | 0.19 | 9.90 | 2.59 |
| Gemellus Inferiorb | Gemellus (inf.) | 10.3 | 9.01 | 1.14 | 1.00 | 0.00 | 2.70 |
| Gemellus Superiorb | Gemellus (sup.) | 10.3 | 9.01 | 1.14 | 1.00 | 0.00 | 2.70 |
| Gluteus Maximus | Glut. max. | 1068.38 | 31.67 | 49.01 | 0.62 | 21.90 | 2.60 |
| Gluteus Medius | Glut. med. | 406.58 | 20.84 | 51.94 | 0.37 | 20.50 | 2.40 |
| Gluteus Minimus | Glut. min. | 131.64 | 14.01 | 8.78 | 1.00 | 0.00 | 2.70 |
| Gracilis | Gracilis | 130.75 | 35.13 | 3.63 | 0.79 | 8.20 | 3.24 |
| Iliacus | Iliacus | 222.09 | 27.3 | 11.76 | 0.56 | 14.30 | 3.02 |
| Obturator Externus | Obt. ext. | 68.06 | 10.74 | 5.92 | 1.00 | 0.00 | 2.70 |
| Obturator Internus | Obturator int. | 34.03 | 8.65 | 3.68 | 1.00 | 0.00 | 2.70 |
| Pectineus | Pectineus | 82.39 | 13.92 | 5.53 | 1.00 | 0.00 | 2.70 |
| Peroneals Brevisc | Peroneus brev. | 52.84 | 38.68 | 6.47 | 0.19 | 11.50 | 2.76 |
| Peroneals Longusc | Peroneus long. | 111.05 | 38.68 | 13.54 | 0.19 | 14.10 | 2.72 |
| Peroneals Tertd | Peroneus tert. |  |  | 6.2 | 1.00 | 0.00 | 2.70 |
| Piriformis | Piriformis | 54.63 | 10.47 | 4.88 | 1.00 | 0.00 | 2.70 |
| Plantaris | Plantaris |  |  | 2.4 | 1.00 | 0.00 | 2.70 |
| Popliteus | Popliteus | 29.55 | 10.47 | 2.64 | 1.00 | 0.00 | 2.70 |
| Psoas Minord | Psoas minor |  |  | 1.1 | 1.00 | 0.00 | 2.70 |
| Psoas | Psoas | 340.31 | 35.49 | 15.3 | 0.50 | 10.60 | 3.11 |
| Quadratus Femoris | Quadratis fem. | 40.3 | 7.92 | 4.76 | 1.00 | 0.00 | 2.70 |
| Rectus Femoris | Rectus fem. | 339.41 | 34.94 | 46.82 | 0.21 | 13.90 | 2.42 |
| Sartorius | Sartorius | 205.08 | 57.33 | 3.22 | 0.90 | 1.30 | 3.11 |
| Semimembranosus | Semimembr. | 309.86 | 29.67 | 40.63 | 0.24 | 15.10 | 2.61 |
| Semitendinosus | Semitend. | 232.84 | 33.67 | 9.06 | 0.65 | 12.90 | 2.89 |
| Soleus | Soleus | 556.13 | 34.94 | 151.65 | 0.11 | 28.30 | 2.12 |
| Tensor Fasciae Latae | Tensor fasc. l. | 79.7 | 17.29 | 4.31 | 1.00 | 0.00 | 2.70 |
| Tibialis Anterior | Tibialis ant. | 171.05 | 34.49 | 14.01 | 0.27 | 9.60 | 3.14 |
| Tibialis Posterior | Tibial post. | 133.44 | 33.31 | 31.23 | 0.12 | 13.70 | 2.56 |
| Vastus Intermedius | Vastus interm. | 343.89 | 36.13 | 45.99 | 0.24 | 4.50 | 2.17 |
| Vastus Lateralis | Vastus lat. | 1044.2 | 39.95 | 76.97 | 0.38 | 18.40 | 2.14 |
| Vastus Medialis | Vastus med. | 542.7 | 35.95 | 67.23 | 0.22 | 29.60 | 2.24 |

Fibre length to muscle length ratio (), pennation angle (θ), and sarcomere length () were taken from [10]. For muscles which were not measured in [10] their fibre length to muscle length ratio was set as 1, pennation angle was set as 0° and sarcomere length was set as 2.7µm.

a. Muscle volume was only available for the combined extensor digitorum longus and extensor hallucis longus in [11]. Volume proportion in [12] was used to divide the two muscles.

b. Muscle volume was only available for the combined gemellus inferior and gemellus superior in [11]. Volume proportion in [12] was used to divide the two muscles.

c. Muscle volume was only available for the combined peroneus longus and peroneus brevis in [11]. Volume proportion in [12] was used to divide the two muscles.

d. Muscle was not included in [11]. Its PCSA was obtained from [12].

Table M1.7 Muscle lines-of-action, expressed with respect to the global frame

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Muscle element name** | **Type of point** | **Position in mm** | | |
| **X** | **Y** | **Z** |
| Add. brev. (dist\*.) 1 | Origin | 30.0 | -130.1 | 12.9 |
| Insertion | -20.4 | -186.9 | 93.5 |
| Add. brev. (dist.) 2 | Origin | 34.9 | -129.9 | 10.6 |
| Insertion | -20.0 | -193.6 | 95.3 |
| Add. brev. (mid\*.) 1 | Origin | 32.9 | -127.6 | 13.1 |
| Insertion | -20.6 | -173.8 | 88.6 |
| Add. brev. (mid.) 2 | Origin | 36.8 | -127.9 | 10.7 |
| Insertion | -20.4 | -180.5 | 91.1 |
| Add. brev. (prox\*.) 1 | Origin | 35.5 | -124.5 | 15.8 |
| Insertion | -19.0 | -162.1 | 81.5 |
| Add. brev. (prox.) 2 | Origin | 39.0 | -124.5 | 12.9 |
| Insertion | -20.0 | -167.6 | 85.1 |
| Add. long. 1 | Origin | 42.9 | -128.7 | 15.8 |
| Insertion | -21.4 | -231.1 | 104.6 |
| Add. long. 2 | Origin | 43.6 | -129.1 | 13.5 |
| Insertion | -20.7 | -241.7 | 103.9 |
| Add. long. 3 | Origin | 44.5 | -129.5 | 10.5 |
| Insertion | -19.7 | -252.6 | 104.6 |
| Add. long. 4 | Origin | 45.2 | -129.9 | 8.2 |
| Insertion | -19.2 | -263.3 | 104.4 |
| Add. long. 5 | Origin | 45.7 | -130.3 | 5.6 |
| Insertion | -19.0 | -275.4 | 104.1 |
| Add. long. 6 | Origin | 46.0 | -130.4 | 2.9 |
| Insertion | -18.1 | -286.7 | 102.5 |
| Add. magn. (dist.) 1 | Origin | -47.3 | -162.8 | 44.0 |
| Insertion | -16.0 | -540.8 | 61.8 |
| Add. magn. (dist.) 2 | Origin | -35.3 | -163.7 | 34.2 |
| Insertion | -16.0 | -540.8 | 61.8 |
| Add. magn. (dist.) 3 | Origin | -26.2 | -159.7 | 30.1 |
| Insertion | -16.0 | -540.8 | 61.8 |
| Add. magn. (mid.) 1 | Origin | -52.6 | -161.3 | 46.5 |
| Insertion | -13.7 | -369.7 | 104.7 |
| Add. magn. (mid.) 2 | Origin | -48.4 | -161.4 | 49.9 |
| Insertion | -13.7 | -369.7 | 104.7 |
| Add. magn. (mid.) 3 | Origin | -41.6 | -161.2 | 36.2 |
| Insertion | -14.3 | -399.4 | 104.7 |
| Add. magn. (mid.) 4 | Origin | -39.3 | -163.3 | 40.2 |
| Insertion | -14.3 | -399.4 | 104.7 |
| Add. magn. (mid.) 5 | Origin | -31.7 | -161.0 | 28.8 |
| Insertion | -14.8 | -431.7 | 104.5 |
| Add. magn. (mid.) 6 | Origin | -30.3 | -161.6 | 31.9 |
| Insertion | -14.8 | -431.7 | 104.5 |
| Add. magn.(prox.) 1 | Origin | -11.2 | -158.4 | 22.4 |
| Insertion | -24.2 | -225.0 | 106.9 |
| Add. magn.(prox.) 2 | Origin | -22.3 | -159.9 | 27.1 |
| Insertion | -21.8 | -247.2 | 107.1 |
| Add. magn.(prox.) 3 | Origin | -16.9 | -158.7 | 24.7 |
| Insertion | -19.9 | -270.3 | 107.4 |
| Add. magn.(prox.) 4 | Origin | -11.2 | -158.4 | 22.4 |
| Insertion | -20.4 | -292.2 | 106.5 |
| Bic. fem. CB 1 | Origin | -17.7 | -326.3 | 110.0 |
| Insertion | -36.9 | -615.5 | 165.7 |
| Bic. fem. CB 2 | Origin | -13.3 | -397.9 | 109.9 |
| Insertion | -36.9 | -615.5 | 165.7 |
| Bic. fem. CB 3 | Origin | -14.0 | -462.4 | 110.9 |
| Insertion | -36.9 | -615.5 | 165.7 |
| Bic. fem. CL | Origin | -65.0 | -120.6 | 67.4 |
| Insertion | -36.9 | -615.5 | 165.7 |
| Ext. dig. long. 1 | Origin | -30.9 | -679.6 | 150.5 |
| Via1 | 17.2 | -969.6 | 145.4 |
| Via2 | 19.2 | -975.6 | 145.7 |
| Via3 | 21.2 | -982.5 | 145.9 |
| Via4 | 23.1 | -989.3 | 145.9 |
| Via5 | 33.4 | -1029.3 | 144.3 |
| Insertion | 175.9 | -1097.8 | 165.7 |
| Ext. dig. long. 2 | Origin | -29.2 | -646.3 | 151.9 |
| Via1 | 17.2 | -969.6 | 145.4 |
| Via2 | 19.2 | -975.6 | 145.7 |
| Via3 | 21.2 | -982.5 | 145.9 |
| Via4 | 23.1 | -989.3 | 145.9 |
| Via5 | 33.4 | -1029.3 | 144.3 |
| Insertion | 175.9 | -1097.8 | 165.7 |
| Ext. dig. long. 3 | Origin | -15.0 | -616.2 | 157.5 |
| Via1 | 17.2 | -969.6 | 145.4 |
| Via2 | 19.2 | -975.6 | 145.7 |
| Via3 | 21.2 | -982.5 | 145.9 |
| Via4 | 23.1 | -989.3 | 145.9 |
| Via5 | 33.4 | -1029.3 | 144.3 |
| Insertion | 175.9 | -1097.8 | 165.7 |
| Ext. hal. long.1 | Origin | -26.4 | -833.9 | 145.7 |
| Via1 | 10.3 | -936.3 | 141.7 |
| Via2 | 14.5 | -946.9 | 141.3 |
| Via3 | 18.1 | -958.0 | 140.2 |
| Via4 | 21.3 | -966.9 | 139.1 |
| Via5 | 24.7 | -977.0 | 138.2 |
| Via6 | 27.7 | -987.6 | 137.8 |
| Via7 | 63.9 | -1038.6 | 107.2 |
| Via8 | 81.5 | -1046.9 | 105.7 |
| Via9 | 90.2 | -1055.3 | 104.0 |
| Via10 | 99.9 | -1061.8 | 103.3 |
| Via11 | 110.4 | -1068.5 | 102.8 |
| Via12 | 138.7 | -1083.1 | 99.1 |
| Via13 | 144.6 | -1085.3 | 98.2 |
| Insertion | 176.1 | -1085.2 | 100.8 |
| Ext. hal. long.2 | Origin | -29.3 | -768.2 | 148.5 |
| Via1 | 10.3 | -936.3 | 141.7 |
| Via2 | 14.5 | -946.9 | 141.3 |
| Via3 | 18.1 | -958.0 | 140.2 |
| Via4 | 21.3 | -966.9 | 139.1 |
| Via5 | 24.7 | -977.0 | 138.2 |
| Via6 | 27.7 | -987.6 | 137.8 |
| Via7 | 63.9 | -1038.6 | 107.2 |
| Via8 | 81.5 | -1046.9 | 105.7 |
| Via9 | 90.2 | -1055.3 | 104.0 |
| Via10 | 99.9 | -1061.8 | 103.3 |
| Via11 | 110.4 | -1068.5 | 102.8 |
| Via12 | 138.7 | -1083.1 | 99.1 |
| Via13 | 144.6 | -1085.3 | 98.2 |
| Insertion | 176.1 | -1085.2 | 100.8 |
| Ext. hal. long.3 | Origin | -31.0 | -703.4 | 150.5 |
| Via1 | 10.3 | -936.3 | 141.7 |
| Via2 | 14.5 | -946.9 | 141.3 |
| Via3 | 18.1 | -958.0 | 140.2 |
| Via4 | 21.3 | -966.9 | 139.1 |
| Via5 | 24.7 | -977.0 | 138.2 |
| Via6 | 27.7 | -987.6 | 137.8 |
| Via7 | 63.9 | -1038.6 | 107.2 |
| Via8 | 81.5 | -1046.9 | 105.7 |
| Via9 | 90.2 | -1055.3 | 104.0 |
| Via10 | 99.9 | -1061.8 | 103.3 |
| Via11 | 110.4 | -1068.5 | 102.8 |
| Via12 | 138.7 | -1083.1 | 99.1 |
| Via13 | 144.6 | -1085.3 | 98.2 |
| Insertion | 176.1 | -1085.2 | 100.8 |
| Flex.hal.long.1 | Origin | -0.6 | -766.0 | 104.3 |
| Via1 | -19.6 | -964.5 | 101.8 |
| Via2 | -18.7 | -973.4 | 102.0 |
| Via3 | -17.8 | -982.2 | 101.8 |
| Via4 | -15.4 | -991.3 | 100.6 |
| Via5 | -9.7 | -1003.6 | 99.9 |
| Via6 | -6.9 | -1009.8 | 99.3 |
| Via7 | -2.2 | -1018.9 | 98.5 |
| Via8 | 2.8 | -1025.0 | 98.0 |
| Insertion | 180.9 | -1095.6 | 117.6 |
| Flex.hal.long.2 | Origin | -2.9 | -800.7 | 107.5 |
| Via1 | -19.6 | -964.5 | 101.8 |
| Via2 | -18.7 | -973.4 | 102.0 |
| Via3 | -17.8 | -982.2 | 101.8 |
| Via4 | -15.4 | -991.3 | 100.6 |
| Via5 | -9.7 | -1003.6 | 99.9 |
| Via6 | -6.9 | -1009.8 | 99.3 |
| Via7 | -2.2 | -1018.9 | 98.5 |
| Via8 | 2.8 | -1025.0 | 98.0 |
| Insertion | 180.9 | -1095.6 | 117.6 |
| Flex.hal.long.3 | Origin | -3.7 | -837.5 | 107.9 |
| Via1 | -19.6 | -964.5 | 101.8 |
| Via2 | -18.7 | -973.4 | 102.0 |
| Via3 | -17.8 | -982.2 | 101.8 |
| Via4 | -15.4 | -991.3 | 100.6 |
| Via5 | -9.7 | -1003.6 | 99.9 |
| Via6 | -6.9 | -1009.8 | 99.3 |
| Via7 | -2.2 | -1018.9 | 98.5 |
| Via8 | 2.8 | -1025.0 | 98.0 |
| Insertion | 180.9 | -1095.6 | 117.6 |
| Flex. hal. long. 1 | Origin | -43.1 | -732.8 | 140.8 |
| Via1 | -32.9 | -958.5 | 113.7 |
| Via2 | -30.9 | -967.1 | 113.3 |
| Via3 | -29.4 | -976.5 | 112.4 |
| Via4 | -27.9 | -985.1 | 111.5 |
| Via5 | -24.0 | -999.6 | 110.5 |
| Via6 | -20.0 | -1007.7 | 109.0 |
| Via7 | -16.5 | -1014.9 | 106.2 |
| Via8 | -12.6 | -1022.7 | 103.7 |
| Insertion | 175.5 | -1098.1 | 98.5 |
| Flex. hal. long. 2 | Origin | -39.4 | -786.4 | 139.8 |
| Via1 | -32.9 | -958.5 | 113.7 |
| Via2 | -30.9 | -967.1 | 113.3 |
| Via3 | -29.4 | -976.5 | 112.4 |
| Via4 | -27.9 | -985.1 | 111.5 |
| Via5 | -24.0 | -999.6 | 110.5 |
| Via6 | -20.0 | -1007.7 | 109.0 |
| Via7 | -16.5 | -1014.9 | 106.2 |
| Via8 | -12.6 | -1022.7 | 103.7 |
| Insertion | 175.5 | -1098.1 | 98.5 |
| Flex. hal. long. 3 | Origin | -36.7 | -837.5 | 138.5 |
| Via1 | -32.9 | -958.5 | 113.7 |
| Via2 | -30.9 | -967.1 | 113.3 |
| Via3 | -29.4 | -976.5 | 112.4 |
| Via4 | -27.9 | -985.1 | 111.5 |
| Via5 | -24.0 | -999.6 | 110.5 |
| Via6 | -20.0 | -1007.7 | 109.0 |
| Via7 | -16.5 | -1014.9 | 106.2 |
| Via8 | -12.6 | -1022.7 | 103.7 |
| Insertion | 175.5 | -1098.1 | 98.5 |
| Gastrocn. (lat\*.) | Origin | -27.3 | -529.0 | 136.5 |
| Insertion | -56.4 | -1018.6 | 115.9 |
| Gastrocn. (med\*.) | Origin | -18.3 | -533.9 | 79.4 |
| Insertion | -47.6 | -1018.0 | 101.7 |
| Gemellus (sup\*.) | Origin | -63.9 | -83.6 | 49.0 |
| Insertion | -26.6 | -92.5 | 121.4 |
| Gemellus (inf\*.) | Origin | -52.2 | -98.4 | 68.2 |
| Insertion | -29.4 | -94.5 | 121.7 |
| Glut. max. (sup.) 1 | Origin | -82.9 | 27.0 | 56.6 |
| Insertion | -36.1 | -179.8 | 117.3 |
| Glut. max. (sup.) 2 | Origin | -89.0 | -1.2 | 56.2 |
| Insertion | -34.2 | -191.6 | 118.0 |
| Glut. max. (sup.) 3 | Origin | -88.3 | 10.8 | 56.7 |
| Insertion | -30.2 | -201.7 | 118.1 |
| Glut. max. (sup.) 4 | Origin | -89.0 | 28.5 | 51.1 |
| Insertion | -36.1 | -179.8 | 117.3 |
| Glut. max. (sup.) 5 | Origin | -101.4 | 5.9 | 43.7 |
| Insertion | -34.2 | -191.6 | 118.0 |
| Glut. max. (sup.) 6 | Origin | -96.7 | 18.1 | 50.5 |
| Insertion | -30.2 | -201.7 | 118.1 |
| Glut. max. (inf.) 1 | Origin | -117.6 | -70.7 | 6.7 |
| Insertion | -29.4 | -216.9 | 118.1 |
| Glut. max. (inf.) 2 | Origin | -115.9 | -79.2 | 6.5 |
| Insertion | -22.2 | -243.0 | 115.5 |
| Glut. max. (inf.) 3 | Origin | -113.5 | -86.8 | 6.7 |
| Insertion | -21.1 | -266.5 | 112.6 |
| Glut. max. (inf.) 4 | Origin | -114.7 | -68.1 | 10.0 |
| Insertion | -29.4 | -216.9 | 118.1 |
| Glut. max. (inf.) 5 | Origin | -112.8 | -76.0 | 9.8 |
| Insertion | -22.2 | -243.0 | 115.5 |
| Glut. max. (inf.) 6 | Origin | -110.6 | -83.8 | 9.8 |
| Insertion | -21.1 | -266.5 | 112.6 |
| Glut. med. (ant.) 1 | Origin | 7.9 | 28.9 | 132.3 |
| Insertion | -42.0 | -90.4 | 129.8 |
| Glut. med. (ant.) 2 | Origin | 20.8 | 14.5 | 131.2 |
| Insertion | -38.3 | -91.0 | 133.5 |
| Glut. med. (ant.) 3 | Origin | 37.2 | 4.2 | 125.6 |
| Insertion | -35.0 | -91.7 | 137.1 |
| Glut. med. (ant.) 4 | Origin | 13.0 | 29.2 | 134.1 |
| Insertion | -44.8 | -93.1 | 131.5 |
| Glut. med. (ant.) 5 | Origin | 26.5 | 14.5 | 134.1 |
| Insertion | -41.3 | -93.4 | 135.5 |
| Glut. med. (ant.) 6 | Origin | 41.6 | 4.5 | 126.7 |
| Insertion | -38.1 | -94.3 | 139.3 |
| Glut. med. (post.) 1 | Origin | -10.9 | 29.4 | 113.2 |
| Insertion | -42.2 | -90.8 | 118.9 |
| Glut. med. (post.) 2 | Origin | -34.5 | 12.1 | 82.9 |
| Insertion | -42.7 | -90.6 | 115.7 |
| Glut. med. (post.) 3 | Origin | -66.1 | -16.3 | 65.9 |
| Insertion | -42.6 | -91.7 | 112.1 |
| Glut. med. (post.) 4 | Origin | -11.1 | 44.4 | 120.8 |
| Insertion | -45.7 | -91.5 | 119.6 |
| Glut. med. (post.) 5 | Origin | -41.1 | 37.3 | 82.2 |
| Insertion | -46.6 | -91.4 | 115.5 |
| Glut. med. (post.) 6 | Origin | -77.7 | 5.4 | 60.5 |
| Insertion | -46.5 | -92.1 | 112.2 |
| Glut. min. (ant.) | Origin | 12.4 | -16.0 | 108.6 |
| Insertion | -23.6 | -93.9 | 139.8 |
| Glut. min. (mid.) | Origin | -16.6 | -8.7 | 93.2 |
| Insertion | -23.6 | -93.9 | 139.8 |
| Glut. min. (post.) | Origin | -42.8 | -19.8 | 74.9 |
| Insertion | -23.6 | -93.9 | 139.8 |
| Gracilis 1 | Origin | -10.3 | -157.1 | 22.0 |
| Via1 | -38.1 | -596.4 | 71.7 |
| Via2 | -35.8 | -602.6 | 72.3 |
| Via3 | -34.1 | -608.2 | 73.4 |
| Via4 | -32.0 | -613.9 | 74.4 |
| Via5 | -29.1 | -619.4 | 75.9 |
| Via6 | -26.0 | -624.4 | 78.2 |
| Via7 | -22.2 | -628.9 | 79.5 |
| Via8 | -19.5 | -633.5 | 83.2 |
| Insertion | -12.2 | -644.7 | 91.7 |
| Gracilis 1 | Origin | 3.2 | -149.6 | 13.1 |
| Via1 | -38.1 | -596.4 | 71.7 |
| Via2 | -35.8 | -602.6 | 72.3 |
| Via3 | -34.1 | -608.2 | 73.4 |
| Via4 | -32.0 | -613.9 | 74.4 |
| Via5 | -29.1 | -619.4 | 75.9 |
| Via6 | -26.0 | -624.4 | 78.2 |
| Via7 | -22.2 | -628.9 | 79.5 |
| Via8 | -19.5 | -633.5 | 83.2 |
| Insertion | -12.2 | -644.7 | 91.7 |
| Iliacus (lat.) 1 | Origin | 2.9 | 49.0 | 112.4 |
| Via | 26.2 | -66.5 | 61.4 |
| Insertion | -16.8 | -162.7 | 86.7 |
| Iliacus (lat.) 2 | Origin | 25.1 | 26.3 | 114.3 |
| Via | 26.2 | -66.5 | 61.4 |
| Insertion | -16.8 | -162.7 | 86.7 |
| Iliacus (lat.) 3 | Origin | 47.2 | 5.7 | 106.7 |
| Via | 26.2 | -66.5 | 61.4 |
| Insertion | -16.8 | -162.7 | 86.7 |
| Iliacus (med.) 1 | Origin | -43.8 | 51.5 | 58.1 |
| Via | 26.2 | -66.5 | 61.4 |
| Insertion | -16.8 | -162.7 | 86.7 |
| Iliacus (med.) 2 | Origin | -32.8 | 30.3 | 58.5 |
| Via | 26.2 | -66.5 | 61.4 |
| Insertion | -16.8 | -162.7 | 86.7 |
| Iliacus (med.) 3 | Origin | -22.1 | 7.4 | 57.8 |
| Via | 26.2 | -66.5 | 61.4 |
| Insertion | -16.8 | -162.7 | 86.7 |
| Glut. min. (mid.) 1 | Origin | -24.0 | 64.2 | 93.9 |
| Via | 26.2 | -66.5 | 61.4 |
| Insertion | -16.8 | -162.7 | 86.7 |
| Glut. min. (mid.) 2 | Origin | -15.2 | 32.7 | 94.0 |
| Via | 26.2 | -66.5 | 61.4 |
| Insertion | -16.8 | -162.7 | 86.7 |
| Glut. min. (mid.) 3 | Origin | -2.7 | 2.2 | 90.3 |
| Via | 26.2 | -66.5 | 61.4 |
| Insertion | -16.8 | -162.7 | 86.7 |
| Obt. ext. (sup.) 1 | Origin | 9.7 | -131.0 | 22.3 |
| Via | -30.2 | -110.5 | 88.9 |
| Insertion | -33.3 | -109.9 | 114.8 |
| Obt. ext. (sup.) 2 | Origin | -8.8 | -136.8 | 31.4 |
| Via | -30.2 | -110.5 | 88.9 |
| Insertion | -33.3 | -109.9 | 114.8 |
| Obt. ext. (sup.) 3 | Origin | -29.2 | -134.1 | 49.2 |
| Via | -30.2 | -110.5 | 88.9 |
| Insertion | -33.3 | -109.9 | 114.8 |
| Obt. ext. (inf.) 1 | Origin | -29.1 | -143.2 | 46.3 |
| Insertion | -30.7 | -109.4 | 112.6 |
| Obt. ext. (inf.) 2 | Origin | -13.3 | -143.4 | 32.4 |
| Insertion | -30.7 | -109.4 | 112.6 |
| Obturator int. 1 | Origin | -25.5 | -118.4 | 42.8 |
| Via | -71.3 | -122.8 | 59.0 |
| Insertion | -32.7 | -96.0 | 116.4 |
| Obturator int. 2 | Origin | -37.8 | -131.8 | 41.8 |
| Via | -71.3 | -122.8 | 59.0 |
| Insertion | -32.7 | -96.0 | 116.4 |
| Obturator int. 3 | Origin | -51.8 | -144.4 | 39.1 |
| Via | -71.3 | -122.8 | 59.0 |
| Insertion | -32.7 | -96.0 | 116.4 |
| Pectineus 1 | Origin | 27.0 | -78.6 | 45.8 |
| Insertion | -17.1 | -170.3 | 88.4 |
| Pectineus 2 | Origin | 27.4 | -81.9 | 43.0 |
| Insertion | -17.1 | -184.1 | 92.5 |
| Pectineus 3 | Origin | 28.2 | -86.6 | 40.0 |
| Insertion | -14.9 | -197.9 | 93.7 |
| Pectineus 4 | Origin | 28.3 | -90.8 | 36.3 |
| Insertion | -17.1 | -170.3 | 88.4 |
| Peroneus brev. 1 | Origin | -37.4 | -806.6 | 152.0 |
| Via1 | -35.2 | -968.0 | 148.1 |
| Via2 |  |  |  |
| Via3 | -33.3 | -1001.4 | 145.7 |
| Via4 | -30.1 | -1017.6 | 144.6 |
| Insertion | 53.4 | -1079.6 | 170.6 |
| Peroneus brev. 2 | Origin | -35.3 | -872.2 | 150.5 |
| Via1 | -35.2 | -968.0 | 148.1 |
| Via2 | -34.4 | -986.0 | 146.9 |
| Via3 | -33.3 | -1001.4 | 145.7 |
| Via4 | -30.1 | -1017.6 | 144.6 |
| Insertion | 53.4 | -1079.6 | 170.6 |
| Peroneus brev. 3 | Origin | -32.6 | -940.7 | 148.7 |
| Via1 | -35.2 | -968.0 | 148.1 |
| Via2 | -34.4 | -986.0 | 146.9 |
| Via3 | -33.3 | -1001.4 | 145.7 |
| Via4 | -30.1 | -1017.6 | 144.6 |
| Insertion | 53.4 | -1079.6 | 170.6 |
| Peroneus long. 1 | Origin | -27.5 | -628.1 | 164.4 |
| Via1 | -35.2 | -968.0 | 148.1 |
| Via2 | -34.4 | -986.0 | 146.9 |
| Via3 | -33.3 | -1001.4 | 145.7 |
| Via4 | -30.1 | -1017.6 | 144.6 |
| Insertion | 82.1 | -1067.0 | 107.6 |
| Peroneus long. 2 | Origin | -37.5 | -677.2 | 157.0 |
| Via1 | -35.2 | -968.0 | 148.1 |
| Via2 | -34.4 | -986.0 | 146.9 |
| Via3 | -33.3 | -1001.4 | 145.7 |
| Via4 | -30.1 | -1017.6 | 144.6 |
| Insertion | 82.1 | -1067.0 | 107.6 |
| Peroneus long. 3 | Origin | -39.4 | -727.5 | 155.3 |
| Via1 | -35.2 | -968.0 | 148.1 |
| Via2 | -34.4 | -986.0 | 146.9 |
| Via3 | -33.3 | -1001.4 | 145.7 |
| Via4 | -30.1 | -1017.6 | 144.6 |
| Insertion | 82.1 | -1067.0 | 107.6 |
| Peroneus tert. 1 | Origin | -17.3 | -948.8 | 143.4 |
| Via1 | 10.1 | -965.5 | 149.3 |
| Via2 | 13.6 | -978.5 | 149.9 |
| Via3 | 18.5 | -994.5 | 149.6 |
| Insertion | 72.1 | -1082.4 | 167.6 |
| Peroneus tert. 2 | Origin | -23.0 | -896.5 | 143.4 |
| Via1 | 10.1 | -965.5 | 149.3 |
| Via2 | 13.6 | -978.5 | 149.9 |
| Via3 | 18.5 | -994.5 | 149.6 |
| Insertion | 72.1 | -1082.4 | 167.6 |
| Peroneus tert. 3 | Origin | -25.3 | -845.0 | 145.6 |
| Via1 | 10.1 | -965.5 | 149.3 |
| Via2 | 13.6 | -978.5 | 149.9 |
| Via3 | 18.5 | -994.5 | 149.6 |
| Insertion | 72.1 | -1082.4 | 167.6 |
| Piriformis | Origin | -84.2 | -35.4 | 9.9 |
| Insertion | -38.6 | -88.1 | 124.1 |
| Plantaris | Origin | -26.7 | -534.3 | 144.0 |
| Insertion | -48.1 | -1018.0 | 102.2 |
| Popliteus 1 | Origin | -30.1 | -569.5 | 161.4 |
| Via | -37.7 | -614.5 | 136.1 |
| Insertion | -15.2 | -717.0 | 104.0 |
| Popliteus 2 | Origin | -30.1 | -569.5 | 161.4 |
| Via | -37.7 | -614.5 | 136.1 |
| Insertion | -17.8 | -641.0 | 91.5 |
| Psoas minor | Origin | -15.6 | 265.6 | 16.8 |
| Insertion | 17.4 | -70.7 | 41.5 |
| Psoas major 1 | Origin | -15.4 | 259.7 | 18.7 |
| Via | 26.2 | -66.5 | 61.4 |
| Insertion | -16.8 | -162.7 | 86.7 |
| Psoas major 2 | Origin | -14.2 | 184.0 | 18.9 |
| Via | 26.2 | -66.5 | 61.4 |
| Insertion | -16.8 | -162.7 | 86.7 |
| Psoas major 3 | Origin | -15.1 | 103.6 | 18.2 |
| Via | 26.2 | -66.5 | 61.4 |
| Insertion | -16.8 | -162.7 | 86.7 |
| Quadratis fem. 1 | Origin | -42.9 | -123.8 | 75.4 |
| Insertion | -52.2 | -129.5 | 110.3 |
| Quadratis fem. 2 | Origin | -44.1 | -132.1 | 73.3 |
| Insertion | -50.0 | -138.0 | 110.3 |
| Quadratis fem. 3 | Origin | -45.1 | -140.1 | 69.6 |
| Insertion | -47.0 | -146.0 | 110.9 |
| Quadratis fem. 4 | Origin | -45.4 | -147.2 | 65.3 |
| Insertion | -43.9 | -154.1 | 111.1 |
| Rectus fem. 1 | Origin | 35.9 | -52.5 | 97.1 |
| Insertion | 32.6 | -521.8 | 124.9 |
| Rectus fem. 2 | Origin | 35.9 | -52.5 | 97.1 |
| Insertion | 31.9 | -522.0 | 103.9 |
| Sartorius (dist.) | Origin | 52.2 | -15.8 | 108.3 |
| Via | -52.2 | -549.9 | 64.1 |
| Insertion | 3.1 | -642.3 | 98.1 |
| Sartorius (prox.) | Origin | 52.2 | -15.8 | 108.3 |
| Via1 | 57.4 | -106.2 | 93.0 |
| Via2 | 49.2 | -216.5 | 63.7 |
| Via3 | 43.3 | -242.6 | 57.4 |
| Via4 | 37.0 | -271.5 | 51.1 |
| Via5 | 27.2 | -303.3 | 47.0 |
| Via6 | 12.4 | -332.9 | 43.1 |
| Via7 | 0.3 | -362.8 | 41.7 |
| Via8 | -11.7 | -392.1 | 42.0 |
| Via9 | -20.1 | -421.1 | 43.4 |
| Via10 | -27.6 | -452.2 | 46.4 |
| Via11 | -32.8 | -481.3 | 51.4 |
| Via12 | -37.7 | -512.3 | 57.2 |
| Via13 | -33.6 | -551.8 | 62.3 |
| Insertion | 3.1 | -642.3 | 98.1 |
| Semimembr. | Origin | -57.4 | -115.5 | 74.7 |
| Insertion | -34.5 | -611.5 | 83.0 |
| Semitend. | Origin | -66.0 | -128.2 | 67.1 |
| Via1 | -49.1 | -598.2 | 78.2 |
| Via2 | -47.4 | -603.4 | 77.7 |
| Via3 | -44.6 | -608.4 | 77.6 |
| Via4 | -42.2 | -613.5 | 77.8 |
| Via5 | -39.1 | -618.6 | 78.0 |
| Via6 | -35.7 | -623.5 | 77.1 |
| Via7 | -32.0 | -628.2 | 77.3 |
| Insertion | -6.4 | -667.7 | 95.9 |
| Soleus (lat.) 1 | Origin | -48.4 | -669.6 | 149.3 |
| Insertion | -54.7 | -1018.0 | 114.5 |
| Soleus (lat.) 2 | Origin | -48.2 | -640.8 | 150.0 |
| Insertion | -54.7 | -1018.0 | 114.5 |
| Soleus (lat.) 3 | Origin | -48.9 | -610.6 | 152.1 |
| Insertion | -54.7 | -1018.0 | 114.5 |
| Soleus (med.)1 | Origin | 0.7 | -770.3 | 107.0 |
| Insertion | -47.4 | -1017.6 | 103.7 |
| Soleus (med.)2 | Origin | -1.0 | -748.8 | 102.9 |
| Insertion | -47.4 | -1017.6 | 103.7 |
| Soleus (med.)3 | Origin | -4.0 | -727.5 | 100.7 |
| Insertion | -47.4 | -1017.6 | 103.7 |
| Tensor fasc. l. 1 | Origin | 51.7 | -6.5 | 121.3 |
| Insertion | 10.7 | -587.8 | 143.9 |
| Tensor fasc. l. 2 | Origin | 45.7 | 2.3 | 126.2 |
| Insertion | 10.7 | -587.8 | 143.9 |
| Tibialis ant. 1 | Origin | 1.5 | -642.3 | 142.7 |
| Via1 | 27.4 | -977.5 | 128.2 |
| Via2 | 71.8 | -1044.1 | 99.6 |
| Insertion | 78.6 | -1064.5 | 92.2 |
| Tibialis ant. 2 | Origin | 4.6 | -718.0 | 135.1 |
| Via1 | 27.4 | -977.5 | 128.2 |
| Via2 | 71.8 | -1044.1 | 99.6 |
| Insertion | 78.6 | -1064.5 | 92.2 |
| Tibialis ant. 3 | Origin | 9.9 | -796.8 | 135.0 |
| Via1 | 27.4 | -977.5 | 128.2 |
| Via2 | 71.8 | -1044.1 | 99.6 |
| Insertion | 78.6 | -1064.5 | 92.2 |
| Tibial post. (lat.) 1 | Origin | -35.0 | -759.2 | 138.4 |
| Via1 | -16.4 | -925.7 | 105.8 |
| Via2 | -16.5 | -935.5 | 105.0 |
| Via3 | -16.2 | -945.2 | 104.2 |
| Via4 | -15.5 | -954.6 | 103.5 |
| Via5 | -14.5 | -964.5 | 101.4 |
| Via6 | -13.2 | -975.2 | 99.6 |
| Via7 | -11.3 | -984.7 | 97.1 |
| Via8 | -7.7 | -993.9 | 95.4 |
| Via9 | -2.5 | -1003.4 | 95.1 |
| Via10 | 6.7 | -1016.8 | 95.3 |
| Insertion | 41.0 | -1045.6 | 104.1 |
| Tibial post. (lat.) 2 | Origin | -28.2 | -832.8 | 141.3 |
| Via1 | -16.4 | -925.7 | 105.8 |
| Via2 | -16.5 | -935.5 | 105.0 |
| Via3 | -16.2 | -945.2 | 104.2 |
| Via4 | -15.5 | -954.6 | 103.5 |
| Via5 | -14.5 | -964.5 | 101.4 |
| Via6 | -13.2 | -975.2 | 99.6 |
| Via7 | -11.3 | -984.7 | 97.1 |
| Via8 | -7.7 | -993.9 | 95.4 |
| Via9 | -2.5 | -1003.4 | 95.1 |
| Via10 | 6.7 | -1016.8 | 95.3 |
| Insertion | 41.0 | -1045.6 | 104.1 |
| Tibial post. (lat.) 3 | Origin | -26.0 | -904.6 | 142.5 |
| Via1 | -16.4 | -925.7 | 105.8 |
| Via2 | -16.5 | -935.5 | 105.0 |
| Via3 | -16.2 | -945.2 | 104.2 |
| Via4 | -15.5 | -954.6 | 103.5 |
| Via5 | -14.5 | -964.5 | 101.4 |
| Via6 | -13.2 | -975.2 | 99.6 |
| Via7 | -11.3 | -984.7 | 97.1 |
| Via8 | -7.7 | -993.9 | 95.4 |
| Via9 | -2.5 | -1003.4 | 95.1 |
| Via10 | 6.7 | -1016.8 | 95.3 |
| Insertion | 41.0 | -1045.6 | 104.1 |
| Tibial post. (med.) 1 | Origin | -20.9 | -637.6 | 139.9 |
| Via1 | -17.2 | -916.4 | 106.9 |
| Via2 | -16.4 | -925.7 | 105.8 |
| Via3 | -16.5 | -935.5 | 105.0 |
| Via4 | -16.2 | -945.2 | 104.2 |
| Via5 | -15.5 | -954.6 | 103.5 |
| Via6 | -14.5 | -964.5 | 101.4 |
| Via7 | -13.2 | -975.2 | 99.6 |
| Via8 | -11.3 | -984.7 | 97.1 |
| Via9 | -7.7 | -993.9 | 95.4 |
| Via10 | -2.5 | -1003.4 | 95.1 |
| Via11 | 6.7 | -1016.8 | 95.3 |
| Insertion | 41.0 | -1045.6 | 104.1 |
| Tibial post. (med.) 2 | Origin | -18.0 | -707.9 | 126.9 |
| Via1 | -17.2 | -916.4 | 106.9 |
| Via2 | -16.4 | -925.7 | 105.8 |
| Via3 | -16.5 | -935.5 | 105.0 |
| Via4 | -16.2 | -945.2 | 104.2 |
| Via5 | -15.5 | -954.6 | 103.5 |
| Via6 | -14.5 | -964.5 | 101.4 |
| Via7 | -13.2 | -975.2 | 99.6 |
| Via8 | -11.3 | -984.7 | 97.1 |
| Via9 | -7.7 | -993.9 | 95.4 |
| Via10 | -2.5 | -1003.4 | 95.1 |
| Via11 | 6.7 | -1016.8 | 95.3 |
| Insertion | 41.0 | -1045.6 | 104.1 |
| Tibial post. (med.) 3 | Origin | -17.8 | -780.4 | 130.8 |
| Via1 | -17.2 | -916.4 | 106.9 |
| Via2 | -16.4 | -925.7 | 105.8 |
| Via3 | -16.5 | -935.5 | 105.0 |
| Via4 | -16.2 | -945.2 | 104.2 |
| Via5 | -15.5 | -954.6 | 103.5 |
| Via6 | -14.5 | -964.5 | 101.4 |
| Via7 | -13.2 | -975.2 | 99.6 |
| Via8 | -11.3 | -984.7 | 97.1 |
| Via9 | -7.7 | -993.9 | 95.4 |
| Via10 | -2.5 | -1003.4 | 95.1 |
| Via11 | 6.7 | -1016.8 | 95.3 |
| Insertion | 41.0 | -1045.6 | 104.1 |
| Vastus lat. (sup.) 1 | Origin | -37.8 | -130.4 | 141.6 |
| Insertion | 32.6 | -521.8 | 124.9 |
| Vastus lat. (sup.) 2 | Origin | -13.8 | -119.5 | 146.3 |
| Insertion | 32.6 | -521.8 | 124.9 |
| Vastus interm. 1 | Origin | -12.5 | -499.3 | 135.8 |
| Insertion | 32.6 | -521.8 | 124.9 |
| Vastus interm. 2 | Origin | -16.0 | -435.8 | 120.0 |
| Insertion | 32.6 | -521.8 | 124.9 |
| Vastus interm. 3 | Origin | -14.7 | -374.7 | 116.9 |
| Insertion | 32.6 | -521.8 | 124.9 |
| Vastus interm. 4 | Origin | -18.6 | -312.6 | 112.4 |
| Insertion | 32.6 | -521.8 | 124.9 |
| Vastus interm. 5 | Origin | -22.3 | -249.2 | 118.3 |
| Insertion | 32.6 | -521.8 | 124.9 |
| Vastus interm. 6 | Origin | -28.5 | -188.7 | 123.5 |
| Insertion | 32.6 | -521.8 | 124.9 |
| Vastus med.(mid.) 1 | Origin | -11.5 | -406.9 | 103.7 |
| Insertion | 31.9 | -522.0 | 103.9 |
| Vastus med.(mid.) 2 | Origin | -8.2 | -407.0 | 102.1 |
| Insertion | 31.9 | -522.0 | 103.9 |
| Vastus med. (sup.) 1 | Origin | -11.1 | -336.4 | 102.0 |
| Insertion | 31.9 | -522.0 | 103.9 |
| Vastus med. (sup.) 2 | Origin | -7.3 | -336.1 | 101.0 |
| Insertion | 31.9 | -522.0 | 103.9 |
| Vastus med. (sup.) 3 | Origin | -16.9 | -260.2 | 101.5 |
| Insertion | 31.9 | -522.0 | 103.9 |
| Vastus med. (sup.) 4 | Origin | -13.4 | -259.9 | 102.3 |
| Insertion | 31.9 | -522.0 | 103.9 |
| Vastus med. (sup.) 5 | Origin | -12.2 | -192.5 | 94.1 |
| Insertion | 31.9 | -522.0 | 103.9 |
| Vastus med. (sup.) 6 | Origin | -7.1 | -191.5 | 94.4 |
| Insertion | 31.9 | -522.0 | 103.9 |
| Vastus med. (inf.) 1 | Origin | -16.3 | -464.7 | 104.8 |
| Insertion | 31.9 | -522.0 | 103.9 |
| Vastus med. (inf.) 2 | Origin | -13.0 | -464.6 | 104.1 |
| Insertion | 31.9 | -522.0 | 103.9 |
| Vastus interm. 1 | Origin | 15.1 | -477.0 | 94.1 |
| Insertion | 31.9 | -522.0 | 103.9 |
| Vastus interm. 2 | Origin | 17.2 | -344.6 | 101.8 |
| Insertion | 31.9 | -522.0 | 103.9 |
| Vastus interm. 3 | Origin | 6.8 | -217.7 | 103.9 |
| Insertion | 31.9 | -522.0 | 103.9 |
| Vastus interm. 4 | Origin | 23.3 | -476.5 | 108.1 |
| Insertion | 32.6 | -521.8 | 124.9 |
| Vastus interm. 5 | Origin | 17.0 | -344.3 | 115.2 |
| Insertion | 32.6 | -521.8 | 124.9 |
| Vastus interm. 6 | Origin | 4.4 | -217.5 | 122.9 |
| Insertion | 32.6 | -521.8 | 124.9 |

\*ant.—anterior; dis.-distal; inf.—inferior; lat.—lateral; med.—medial; post.—posterior; prox.—proximal; sup.—superior.

Table M1.8 Ligament line-of-action, expressed with respect to the global frame

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Origin in mm** | | | **Insertion in mm** | | |
|  | **X** | **Y** | **Z** | **X** | **Y** | **Z** |
| Patellar ligament | 36.4 | -568.5 | 116.5 | 25.4 | -610.8 | 128.9 |