

Muscle and Ligament Anatomical Data for Cervical Spine Models

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Table 1: Raw Landmark coordinates in the global coordinate system, all measurements are in mm.

Segment	Landmark	x	y	z
skull	occipital protuberance	-5.7082	2.0625	1553.04
skull	opisthion	-0.83051	-51.6653	1493.386
skull	bregma	-0.99853	-119.7021	1632.1162
skull	left mastoid	37.7113	-97.6014	1486.3839
skull	right mastoid	-38.3867	-97.6097	1486.0677
skull	nasion	0.73802	-179.6277	1541.085
skull	gnathion	-0.66319	-173.0324	1436.536
skull	left orbitale	32.6223	-166.7147	1507.7939
skull	right orbitale	-30.7765	-165.8919	1507.9735
skull	left jugular foramen	27.1782	-67.2131	1497.812
skull	right jugular foramen	-25.2617	-66.8084	1497.1377
skull	left occipital condyle	18.8385	-77.2517	1489.3898
skull	right occipital condyle	-18.6489	-82.2505	1489.7665
C1	posterior tubercle	0.02387	-53.1858	1477.33
C1	anterior tubercle	-0.73492	-100.88	1478.79
C1	anterior-superior vertebral body	0.8315	-97.71255	1484.56
C1	anterior-inferior vertebral body	-0.51563	-98.5067	1475.25
C1	posterior-superior vertebral body	-0.62863	-59.0596	1482.23
C1	posterior-inferior vertebral body	-0.47245	-57.4519	1474.1
C1	right transverse process	-41.1713	-86.797	1477.24
C1	left transverse process	37.3742	-87.9493	1474.87
C1	right tubercle on lateral mass	-9.9551	-85.5844	1480.48
C1	left tubercle on lateral mass	9.1925	-86.5236	1479.3
C1	right groove for artery	-25.4023	-73.4674	1481.0601
C1	left groove for artery	24.6022	-73.176	1479.92
C1	right anterior transverse foramen	-28.7429	-88.8302	1483.52
C1	right posterior transverse foramen	-27.6184	-79.6794	1478.75
C1	right lateral transverse foramen	-34.2433	-85.4548	1480.36
C1	right medial transverse foramen	-25.2617	-83.1219	1479.61
C1	left anterior transverse foramen	28.3998	-87.9931	1478.1899
C1	left posterior transverse foramen	25.9411	-79.0633	1478.15
C1	left lateral transverse foramen	32.0199	-82.6605	1477.15
C1	left medial transverse foramen	24.0841	-85.3774	1477.65
C1	fovea dentis	0.22992	-95.1837	1480.12
C1	right superior articular surface	-12.177	-92.1888	1487.84
C1	right superior articular surface	-19.721	-89.8597	1489.49
C1	right superior articular surface	-23.8011	-78.3248	1488.51
C1	right superior articular surface	-14.91	-76.8278	1486.5
C1	right superior articular surface	-17.6633	-85.3358	1485.76
C1	left superior articular surface	10.4261	-91.5346	1485.27
C1	left superior articular surface	18.9739	-90.2454	1488.77
C1	left superior articular surface	21.4983	-77.9902	1487.52
C1	left superior articular surface	12.2207	-78.2566	1484.47
C1	left superior articular surface	15.0416	-84.978	1484.29
C1	right inferior articular surface	9.2109	-87.7109	1476.61
C1	right inferior articular surface	18.5991	-88.7237	1472.29
C1	right inferior articular surface	21.114	-80.0516	1471.23
C1	right inferior articular surface	12.7445	-77.0538	1476.0601
C1	right inferior articular surface	18.5389	-75.9674	1473.11
C1	right inferior articular surface	14.5433	-82.3908	1475.39
C1	left inferior articular surface	-10.0574	-91.2971	1476.34
C1	left inferior articular surface	-18.32	-92.2103	1473.89
C1	left inferior articular surface	-24.143	-81.5122	1471.55
C1	left inferior articular surface	-19.0445	-77.2186	1475.85
C1	left inferior articular surface	-11.9108	-83.0333	1477.85
C1	left inferior articular surface	-17.0207	-86.7712	1475.49
C1	anterior vertebral foramen	0.22992	-95.1837	1480.12
C1	posterior vertebral foramen	-0.74628	-61.6504	1478.53
C1	left lateral vertebral foramen	13.9452	-75.4368	1481.25
C1	right lateral vertebral foramen	-15.8726	-76.3187	1481.25
C2	spinous process	-1.5194	-48.6887	1454.08

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Table 1 – continued from previous page

Segment	Landmark	x	y	z
C2	right transverse process	-26.5535	-85.3927	1457.4301
C2	left transverse process	25.3645	-82.7416	1455.76
C2	tip of dens	-0.33413	-88.2332	1488.73
C2	attachment for right alar	-3.4992	-87.0043	1488.11
C2	attachment for left alar	2.4238	-86.4269	1488.45
C2	posterior dens	0.16562	-82.7359	1483.64
C2	anterior dens	-0.15423	-95.5621	1480.62
C2	anterior-superior vertebral body	0.27567	-95.383	1474.59
C2	posterior-superior vertebral body	-0.42588	-84.0405	1473.13
C2	right superior lateral vertebral body	-6.4816	-88.4753	1474.76
C2	left superior lateral vertebral body	6.3986	-87.3747	1474.9
C2	anterior-inferior vertebral body	0.57181	-97.6104	1457.1899
C2	posterior-inferior vertebral body	0.11999	-82.2416	1459.76
C2	right inferior lateral vertebral body	-9.8016	-88.1465	1459.4
C2	left inferior lateral vertebral body	8.7788	-87.4415	1459.46
C2	right superior medial facet surface	-10.5384	-91.2157	1476.11
C2	right superior lateral facet surfaec	-23.2532	-89.0012	1469.97
C2	right superior posterior facet surface	-15.73	-77.1112	1472.09
C2	left superior medial facet surface	7.9701	-90.1899	1477
C2	left superior lateral facet surfaec	20.479	-89.9189	1469.65
C2	left superior posterior facet surface	15.1261	-75.2169	1471.72
C2	right inferior medial facet surface	13.3894	-76.748	1457.76
C2	right inferior lateral facet surfaec	20.7584	-75.4627	1457.13
C2	right inferior posterior facet surface	19.9662	-71.5389	1451.35
C2	left inferior medial facet surface	-14.0636	-75.4006	1457.83
C2	left inferior lateral facet surfaec	-25.3134	-75.7142	1458.17
C2	left inferior posterior facet surface	-16.65	-71.3045	1452.48
C2	right anterior transverse foramen	-17.459	-87.8966	1463.15
C2	right posterior transverse foramen	-16.9983	-81.8793	1462.26
C2	right lateral transverse foramen	-21.5761	-85.504	1460.33
C2	right medial transverse foramen	-14.1086	-85.9156	1463.11
C2	left anterior transverse foramen	15.9503	-83.9143	1465.17
C2	left posterior transverse foramen	16.0519	-80.3353	1461.78
C2	left lateral transverse foramen	19.1279	-84.6589	1460.5
C2	left medial transverse foramen	12.6108	-81.6387	1467.39
C2	anterior vertebral foramen	-0.26285	-83.6722	1465.83
C2	posterior vertebral foramen	-0.79154	-65.3865	1458.14
C2	left lateral vertebral foramen	11.9688	-75.3423	1462.46
C2	right lateral vertebral foramen	-12.2652	-76.904	1462.9301
C3	spinous process	-0.55387	-45.6135	1433.38
C3	right transverse process	-27.6824	-87.6398	1444.1899
C3	left transverse process	26.7174	-87.0893	1444.85
C3	anterior-superior vertebral body	-1.5286	-97.6054	1453.46
C3	posterior-superior vertebral body	-1.2506	-83.3776	1454.39
C3	right superior lateral vertebral body	-10.3706	-87.5418	1456.85
C3	left superior lateral vertebral body	9.9607	-87.6247	1456.88
C3	anterior-inferior vertebral body	0.42126	-97.5217	1441.91
C3	posterior-inferior vertebral body	-0.66035	-84.509	1442.63
C3	right inferior lateral vertebral body	-9.7127	-89.9903	1444.01
C3	left inferior lateral vertebral body	8.542	-90.3074	1444.01
C3	right superior medial facet surface	-13.9777	-74.4879	1451.7
C3	right superior lateral facet surfaec	-24.9306	-76.697	1454.76
C3	right superior posterior facet surface	-21.2364	-73.1982	1448.83
C3	left superior medial facet surface	13.3325	-75.5382	1452.9301
C3	left superior lateral facet surfaec	22.778	-74.7104	1452.85
C3	left superior posterior facet surface	19.4844	-73.0734	1447.5
C3	right inferior medial facet surface	-27.1257	-77.8622	1442.62
C3	right inferior lateral facet surfaec	-16.2544	-79.6803	1443.53
C3	right inferior posterior facet surface	-19.062	-75.2912	1441.15
C3	left inferior medial facet surface	15.3259	-78.2216	1442.01
C3	left inferior lateral facet surfaec	25.0048	-78.9999	1443.98
C3	left inferior posterior facet surface	21.3237	-73.6279	1438.62
C3	right anterior transverse foramen	-17.1358	-88.6182	1452.3101
C3	right posterior transverse foramen	-17.4425	-84.1133	1448.87

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Table 1 – continued from previous page

Segment	Landmark	x	y	z
C3	right lateral transverse foramen	-20.486	-86.7022	1447.23
C3	right medial transverse foramen	-14.0274	-86.89	1450.1899
C3	left anterior transverse foramen	16.9828	-88.5975	1449.8101
C3	left posterior transverse foramen	16.5965	-83.3051	1447.61
C3	left lateral transverse foramen	20.0842	-86.613	1446.89
C3	left medial transverse foramen	12.6143	-86.3455	1448.23
C3	anterior vertebral foramen	0.81436	-83.4452	1447.87
C3	posterior vertebral foramen	-0.26954	-66.4148	1446.4
C3	left lateral vertebral foramen	11.0014	-78.9861	1448.66
C3	right lateral vertebral foramen	-11.6585	-80.3217	1448.87
C4	spinous process	0.001697	-46.6554	1422.27
C4	right transverse process	-28.6638	-86.1209	1430.92
C4	left transverse process	26.6578	-86.6476	1429.39
C4	anterior-superior vertebral body	-0.30093	-97.4884	1438.27
C4	posterior-superior vertebral body	-0.1304	-84.703	1439.49
C4	right superior lateral vertebral body	-11.3707	-87.1743	1444.62
C4	left superior lateral vertebral body	10.5676	-87.5494	1443.96
C4	anterior-inferior vertebral body	-0.27624	-96.6912	1426.47
C4	posterior-inferior vertebral body	-0.093545	-82.9982	1427.72
C4	right inferior lateral vertebral body	-9.7771	-89.0715	1428.54
C4	left inferior lateral vertebral body	9.2754	-89.6444	1429.3
C4	right superior medial facet surface	-18.0574	-78.9401	1441.92
C4	right superior lateral facet surfaec	-26.3423	-81.0465	1443.61
C4	right superior posterior facet surface	-24.4251	-76.6601	1440.01
C4	left superior medial facet surface	14.7394	-79.4435	1441.4301
C4	left superior lateral facet surfaec	24.7387	-79.5026	1442.08
C4	left superior posterior facet surface	20.4172	-74.1103	1436.75
C4	right inferior medial facet surface	-14.0081	-76.3226	1430.3101
C4	right inferior lateral facet surfaec	-26.0504	-79.3944	1430.1899
C4	right inferior posterior facet surface	-19.9757	-74.027	1428.5699
C4	left inferior medial facet surface	15.1735	-77.7702	1431.65
C4	left inferior lateral facet surfaec	24.3445	-80.2439	1428.78
C4	left inferior posterior facet surface	21.6359	-73.6409	1426.37
C4	right anterior transverse foramen	-18.1985	-90.0044	1435.39
C4	right posterior transverse foramen	-18.1182	-84.129	1434.3
C4	right lateral transverse foramen	-20.9526	-86.7586	1433.25
C4	right medial transverse foramen	-14.5538	-87.3902	1435.49
C4	left anterior transverse foramen	14.6076	-89.843	1434.5601
C4	left posterior transverse foramen	17.0797	-84.4877	1434.74
C4	left lateral transverse foramen	19.359	-87.4225	1432.26
C4	left medial transverse foramen	12.749	-87.4065	1435.08
C4	anterior vertebral foramen	0	-83.3303	1432.59
C4	posterior vertebral foramen	0.1613	-63.8579	1429.92
C4	left lateral vertebral foramen	11.3233	-78.2484	1434.01
C4	right lateral vertebral foramen	-12.7032	-79.1173	1434.12
C5	spinous process	-0.40615	-42.1921	1411.66
C5	right transverse process	-30.2971	-83.5535	1417.0699
C5	left transverse process	26.0885	-84.8356	1413.78
C5	anterior-superior vertebral body	-1.5081	-96.3435	1420.52
C5	posterior-superior vertebral body	-1.2719	-84.5819	1424.9301
C5	right superior lateral vertebral body	-13.082	-89.7331	1429.74
C5	left superior lateral vertebral body	11.8409	-90.8338	1428.48
C5	anterior-inferior vertebral body	-1.8529	-94.3237	1409.48
C5	posterior-inferior vertebral body	0.14813	-81.2457	1412.46
C5	right inferior lateral vertebral body	-12.7532	-87.5013	1414.23
C5	left inferior lateral vertebral body	9.1746	-89.6619	1412.53
C5	right superior medial facet surface	-14.5624	-78.056	1429.91
C5	right superior lateral facet surfaec	-25.8063	-79.9346	1428.73
C5	right superior posterior facet surface	-19.7832	-75.3562	1425.95
C5	left superior medial facet surface	15.444	-79.5149	1430.34
C5	left superior lateral facet surfaec	23.0006	-78.4859	1426.24
C5	left superior posterior facet surface	18.2164	-75.8879	1427.5
C5	right inferior medial facet surface	-14.7518	-74.2527	1417.8
C5	right inferior lateral facet surfaec	-26.2107	-73.3057	1415.8199

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Table 1 – continued from previous page

Segment	Landmark	x	y	z
C5	right inferior posterior facet surface	-17.9708	-70.4542	1414.65
C5	left inferior medial facet surface	14.6774	-73.9482	1416.16
C5	left inferior lateral facet surface	22.9187	-70.7002	1415.23
C5	left inferior posterior facet surface	15.5147	-69.5281	1412.8101
C5	right anterior transverse foramen	-18.1919	-87.8551	1417.86
C5	right posterior transverse foramen	-18.8045	-81.8653	1419.1
C5	right lateral transverse foramen	-22.1438	-84.3041	1416.02
C5	right medial transverse foramen	-15.0447	-85.0883	1420.12
C5	left anterior transverse foramen	15.0448	-89.7109	1417.75
C5	left posterior transverse foramen	15.7708	-83.063	1417.49
C5	left lateral transverse foramen	19.608	-86.558	1414.5
C5	left medial transverse foramen	12.4337	-86.7639	1422.63
C5	anterior vertebral foramen	0.35572	-82.974	1419.89
C5	posterior vertebral foramen	-0.56388	-67.6913	1420.15
C5	left lateral vertebral foramen	11.7115	-78.7135	1422.0699
C5	right lateral vertebral foramen	-12.1011	-78.4364	1421.61
C6	spinous process	-1.756	-34.2094	1400.41
C6	right transverse process	-29.8012	-81.3933	1404.05
C6	left transverse process	28.5235	-79.0942	1403.09
C6	anterior-superior vertebral body	-1.579	-94.4514	1405.42
C6	posterior-superior vertebral body	-1.7366	-82.5194	1410.51
C6	right superior lateral vertebral body	-14.7613	-88.1179	1413.4301
C6	left superior lateral vertebral body	11.524	-87.2155	1413.28
C6	anterior-inferior vertebral body	-2.8103	-90.9961	1394.72
C6	posterior-inferior vertebral body	-1.1474	-78.4423	1398.37
C6	right inferior lateral vertebral body	-13.5459	-86.008	1396.95
C6	left inferior lateral vertebral body	9.5845	-85.1316	1396.8
C6	right superior medial facet surface	-17.8845	-75.3883	1414.79
C6	right superior lateral facet surface	-27.1257	-76.9746	1417.63
C6	right superior posterior facet surface	-26.3315	-74.3137	1415.01
C6	left superior medial facet surface	12.9387	-75.3856	1415.3101
C6	left superior lateral facet surface	21.5921	-74.2765	1416.96
C6	left superior posterior facet surface	14.4118	-71.6064	1412.71
C6	right inferior medial facet surface	-22.659	-69.71	1403.99
C6	right inferior lateral facet surface	-28.1961	-69.6623	1402.66
C6	right inferior posterior facet surface	-23.958	-68.0645	1401.54
C6	left inferior medial facet surface	14.2604	-67.8986	1400.77
C6	left inferior lateral facet surface	20.6726	-69.2566	1406.41
C6	left inferior posterior facet surface	20.1159	-65.7147	1402.55
C6	right anterior transverse foramen	-20.7949	-86.9705	1399.61
C6	right posterior transverse foramen	-20.4203	-79.5219	1404.95
C6	right lateral transverse foramen	-25.08	-82.0451	1401.24
C6	right medial transverse foramen	-16.7708	-84.7013	1401.9
C6	left anterior transverse foramen	19.6733	-86.2995	1398.63
C6	left posterior transverse foramen	16.9193	-78.1529	1414.02
C6	left lateral transverse foramen	21.6065	-83.5346	1400.77
C6	left medial transverse foramen	13.1253	-83.3753	1401.9301
C6	right (Chassaignac) carotid tubercle	-26.2732	-88.5211	1401.02
C6	left (Chassaignac) carotid tubercle	22.5416	-87.8581	1402.3199
C7	spinous process	-1.1536	-23.477	1385.92
C7	right transverse process	-34.9444	-73.4324	1397.6899
C7	left transverse process	31.2568	-72.8951	1395.5699
C7	anterior-superior vertebral body	-0.53025	-90.9499	1391.79
C7	posterior-superior vertebral body	-0.68594	-77.2511	1397.59
C7	right superior lateral vertebral body	-13.3947	-81.4903	1398.33
C7	left superior lateral vertebral body	11.7218	-81.4527	1398.39
C7	anterior-inferior vertebral body	-1.2421	-86.8372	1379.97
C7	posterior-inferior vertebral body	-0.63872	-72.9078	1385
C7	right inferior lateral vertebral body	-14.2972	-76.996	1383.96
C7	left inferior lateral vertebral body	10.4962	-77.1776	1383.39
C7	right superior medial facet surface	-17.6716	-71.6307	1404.05
C7	right superior lateral facet surface	-28.8512	-73.7952	1405.29
C7	right superior posterior facet surface	-21.7438	-68.9564	1401.23
C7	left superior medial facet surface	15.531	-70.5749	1403.4399

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Segment	Landmark	x	y	z
C7	left superior lateral facet surfaec	24.0328	-69.9492	1406.61
C7	left superior posterior facet surface	21.9277	-66.3314	1402.49
C7	right inferior medial facet surface	-17.6048	-63.3533	1391.4301
C7	right inferior lateral facet surfaec	-25.151	-61.7963	1393.08
C7	right inferior posterior facet surface	-19.3043	-58.5097	1388.0699
C7	left inferior medial facet surface	11.9826	-61.9434	1390.3101
C7	left inferior lateral facet surfaec	19.2623	-62.7018	1393
C7	left inferior posterior facet surface	17.9575	-57.5403	1388.6
C7	right anterior transverse foramen	-21.4486	-78.0398	1391.67
C7	right posterior transverse foramen	-22.7694	-72.4686	1394.29
C7	right lateral transverse foramen	-25.6911	-74.9873	1391.49
C7	right medial transverse foramen	-17.7943	-75.123	1392.9
C7	left anterior transverse foramen	18.3314	-77.3492	1391.1899
C7	left posterior transverse foramen	18.459	-72.0089	1394.53
C7	left lateral transverse foramen	22.3814	-74.2487	1392.26
C7	left medial transverse foramen	14.4535	-76.1496	1393.35
T1	spinous process	-1.7584	-17.5272	1370.76
T1	right transverse process	-37.4941	-63.0581	1389.12
T1	left transverse process	33.1114	-61.8987	1390.19
T1	anterior-superior vertebral body	-1.3682	-86.0581	1377.86
T1	posterior-superior vertebral body	-1.4098	-72.4251	1383.83
T1	right superior lateral vertebral body	-15.7487	-74.6139	1384.6
T1	left superior lateral vertebral body	12.0459	-73.7718	1381.56
T1	anterior-inferior vertebral body	-1.8483	-81.3118	1364.83
T1	posterior-inferior vertebral body	-2.0383	-65.4616	1370.69
T1	right inferior lateral vertebral body	-15.3683	-72.8377	1366.52
T1	left inferior lateral vertebral body	12.3193	-73.2775	1367.4
T1	right superior medial facet surface	-16.7525	-64.0147	1389.94
T1	right superior lateral facet surfaec	-27.8177	-63.0808	1393.15
T1	right superior posterior facet surface	-22.3183	-61.9566	1389.49
T1	left superior medial facet surface	9.6927	-62.4112	1388.75
T1	left superior lateral facet surfaec	18.8797	-62.1855	1390.37
T1	left superior posterior facet surface	17.1518	-59.14	1387.44
T1	right inferior medial facet surface	-14.2922	-56.1656	1378.02
T1	right inferior lateral facet surfaec	-23.6163	-58.2809	1374.75
T1	right inferior posterior facet surface	-14.3008	-51.5755	1371.83
T1	left inferior medial facet surface	8.2279	-57.0239	1378.45
T1	left inferior lateral facet surfaec	16.8657	-57.597	1375.11
T1	left inferior posterior facet surface	10.6248	-52.1238	1371.89
right clavicle	anterior medial end	-20.5229	-145.689	1345.82
right clavicle	posterior medial end	-12.2549	-124.265	1342.42
right clavicle	anterior lateral end	-148.741	-70.2249	1362.06
right clavicle	posterior lateral end	-138.012	-48.9543	1356.66
left clavicle	anterior medial end	22.4383	-146.743	1342.62
left clavicle	posterior medial end	11.115	-125.778	1344.66
left clavicle	anterior lateral end	146.695	-71.1251	1362.8
left clavicle	posterior lateral end	130.129	-47.4475	1358.87
right scapula	anterior acromion	-153.426	-74.9751	1356.13
right scapula	posterior acromion	-168.341	-51.873	1352.82
right scapula	corocoid	-134.103	-98.5336	1335.76
right scapula	supraglenoid tubercle	-139.67	-68.9827	1336.61
right scapula	infraglenoid tubercle	-148.134	-65.5039	1305.46
right scapula	superior angle	-80.2123	-21.2422	1351.25
right scapula	inferior angle	-94.8557	1.329	1204.62
left scapula	anterior acromion	153.314	-75.4743	1356.23
left scapula	posterior acromion	167.123	-49.6059	1352.6
left scapula	corocoid	131.846	-98.9399	1334.11
left scapula	supraglenoid tubercle	136.814	-70.2398	1337.94
left scapula	infraglenoid tubercle	147.517	-63.9064	1305.99
left scapula	superior angle	77.2697	-19.5914	1350.88
left scapula	inferior angle	92.0624	1.7806	1203.52

Table 2: Raw Muscle Coordinates in the Global Coordinate System. All measurements are in mm.

Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
left rectus capitis posterior major	C2	-3.5074	-52.8867	1457.77	skull	-28.1684	-38.4867	1498.24
left rectus capitis posterior major	C2	-3.6762	-49.8867	1456.57	skull	-29.9684	-48.2573	1496.37
left rectus capitis posterior major	C2	-1.3684	-48.1867	1453.37	skull	-32.5684	-62.2867	1495.51
right rectus capitis posterior major	C2	2.5145	-52.4867	1456.37	skull	27.2316	-38.332	1498.17
right rectus capitis posterior major	C2	2.2317	-49.2867	1455.82	skull	28.4317	-47.6867	1496.49
right rectus capitis posterior major	C2	0.031649	-48.2195	1454.17	skull	32.0317	-62.6867	1495.61
left obliquus capitis inferior	C2	3.0303	-50.9396	1453.49	skull	37.8302	-80.9843	1477.97
right obliquus capitis inferior	C2	-3.6517	-48.7048	1453.16	skull	-37.6697	-81.0665	1478.05
left rectus capitis posterior minor	C1	0.21121	-54.1427	1478.24	skull	5.1917	-33.9427	1499.17
left rectus capitis posterior minor	C1	0.21121	-54.1427	1478.24	skull	14.3916	-37.1427	1496.53
right rectus capitis posterior minor	C1	-1.4084	-54.0787	1478.24	skull	-7.6083	-32.9427	1499.93
right rectus capitis posterior minor	C1	-1.4084	-54.0787	1478.24	skull	-19.8084	-38.7427	1495.69
left obliquus capitis superior	C1	39.2717	-79.5384	1480.91	skull	32.5217	-42.9067	1498.65
right obliquus capitis superior	C1	-40.2284	-79.4798	1480.91	skull	-33.0284	-43.6567	1498.16
left rectus capitis anterior	C1	18.6977	-94.2317	1486.16	skull	4.5976	-95.7727	1501.62
right rectus capitis anterior	C1	-21.0524	-94.3887	1485.71	skull	-6.6524	-95.6227	1501.75
left anterior scalene	T1	51.7704	-102.312	1354.56	C4	21.7704	-90.358	1430.81
left anterior scalene	T1	51.7704	-102.312	1354.56	C5	21.2622	-90.6123	1415.06
left anterior scalene	T1	51.7704	-102.312	1354.56	C6	24.6204	-89.2096	1400.51
right anterior scalene	T1	-51.4296	-103.212	1353.28	C4	-22.3296	-91.1596	1431.41
right anterior scalene	T1	-51.4296	-103.212	1353.28	C5	-23.3796	-90.0123	1416.59
right anterior scalene	T1	-51.4296	-103.212	1353.28	C6	-25.9296	-89.1838	1400.81
left middle scalene	T1	47.9532	-91.2307	1366.33	C2	23.9532	-84.9249	1455.95
left middle scalene	T1	47.9532	-91.2307	1366.33	C3	25.9419	-88.0749	1443.13
left middle scalene	T1	47.9532	-91.2307	1366.33	C4	25.6032	-87.3249	1428.36
left middle scalene	T1	47.9532	-91.2307	1366.33	C5	27.5942	-84.6249	1415.08
left middle scalene	T1	47.9532	-91.2307	1366.33	C6	27.8341	-80.1249	1402.93
left middle scalene	T1	47.9532	-91.2307	1366.33	C7	30.5532	-73.8565	1394.23
right middle scalene	T1	-49.5468	-91.0749	1366.79	C2	-24.0468	-83.1164	1456.78
right middle scalene	T1	-49.5468	-91.0749	1366.79	C3	-27.0949	-88.3749	1443.43
right middle scalene	T1	-49.5468	-91.0749	1366.79	C4	-25.2468	-85.8167	1431.58
right middle scalene	T1	-49.5468	-91.0749	1366.79	C5	-28.5468	-84.1268	1414.63
right middle scalene	T1	-49.5468	-91.0749	1366.79	C6	-28.0968	-80.6628	1403.68
right middle scalene	T1	-49.5468	-91.0749	1366.79	C7	-33.1968	-74.2432	1393.63
left posterior scalene	T1	61.7335	-63.9561	1368.1	C5	27.7292	-84.5061	1415.19
left posterior scalene	T1	61.7335	-63.9561	1368.1	C6	28.1698	-79.8561	1402.59
left posterior scalene	T1	61.7335	-63.9561	1368.1	C7	30.5335	-73.8877	1394.34
right posterior scalene	T1	-63.0666	-63.0561	1368.05	C5	-30.0665	-83.6213	1415.64
right posterior scalene	T1	-63.0666	-63.0561	1368.05	C6	-27.8165	-79.1776	1404.39
right posterior scalene	T1	-63.0666	-63.0561	1368.05	C7	-34.8208	-72.6561	1394.49
left iliocostalis cervicis	T1	57.7415	-40.4917	1352.05	C4	26.9061	-86.2109	1429.69
left iliocostalis cervicis	T1	60.0845	-28.1245	1330.35	C4	26.9061	-86.2109	1429.69
left iliocostalis cervicis	T1	67.5936	-16.8589	1295.65	C5	25.3331	-83.7324	1413.54
left iliocostalis cervicis	T1	66.5459	-7.0139	1267.7	C6	27.4003	-79.3669	1400.55
right iliocostalis cervicis	T1	-57.3722	-39.0593	1351.04	C4	-28.0214	-85.757	1429.95
right iliocostalis cervicis	T1	-62.6543	-28.6946	1330.01	C4	-28.0214	-85.757	1429.95
right iliocostalis cervicis	T1	-69.404	-17.5661	1297.11	C5	-26.4679	-83.8098	1412.3
right iliocostalis cervicis	T1	-69.6299	-6.989	1267.26	C6	-28.8481	-81.3917	1400.46
left semispinalis cervicis	C7	23.7999	-67.6844	1399.69	C3	2.1035	-58.8231	1437.59
left semispinalis cervicis	T1	28.9447	-58.3589	1389.84	C3	2.1035	-58.8231	1437.59

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Table 2 – continued from previous page

Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
left semispinalis cervicis	T1	28.2622	-45.8077	1377.4	C4	1.8149	-53.167	1422.28
left semispinalis cervicis	T1	27.9412	-32.1322	1352.32	C5	2.0814	-47.7927	1410.66
left semispinalis cervicis	T1	29.4668	-23.5633	1327.85	C6	1.5552	-45.8824	1402.15
left semispinalis cervicis	T1	26.197	-18.421	1308.51	C7	2.85	-37.4667	1386.32
right semispinalis cervicis	C7	-25.7762	-67.5348	1404.69	C3	-3.0002	-58.8551	1438.2
right semispinalis cervicis	T1	-32.3091	-58.5249	1388.5	C3	-3.0002	-58.8551	1438.2
right semispinalis cervicis	T1	-29.0703	-46.3021	1376.49	C4	-3.0497	-53.406	1422.34
right semispinalis cervicis	T1	-27.1409	-34.5109	1355.36	C5	-4.032	-48.7509	1411.67
right semispinalis cervicis	T1	-29.3729	-25.7012	1333.83	C6	-3.5054	-46.8572	1403.24
right semispinalis cervicis	T1	-28.788	-18.7458	1306.32	C7	-4.2062	-37.3451	1386.26
left vertical longus colli	T1	2.8456	-79.0289	1353.7	C1	1.351	-100.269	1479.77
left vertical longus colli	T1	3.047	-83.8276	1369.39	C2	2.1396	-95.9342	1465.07
left vertical longus colli	C7	3.791	-87.9334	1385.94	C3	2.743	-97.0762	1451.21
left vertical longus colli	C6	3.5223	-93.9057	1404.3	C4	2.7401	-96.7631	1432.72
right vertical longus colli	T1	-4.099	-79.1923	1354.18	C1	-2.4012	-100.366	1479.69
right vertical longus colli	T1	-4.0475	-84.0241	1369.86	C2	-3.29	-95.7454	1465.34
right vertical longus colli	C7	-5.0892	-87.9578	1386.12	C3	-3.6892	-97.1957	1451.11
right vertical longus colli	C6	-4.8894	-93.9576	1404.21	C4	-4.0348	-96.7828	1432.88
left oblique longus colli	C7	8.485	-83.8082	1376.81	C6	21.09	-88.6162	1400.29
left oblique longus colli	T1	6.5923	-82.1898	1369.72	C6	21.09	-88.6162	1400.29
left oblique longus colli	T1	5.0677	-77.6931	1351.74	C6	21.09	-88.6162	1400.29
left oblique longus colli	T1	4.6877	-72.2654	1333.18	C6	21.09	-88.6162	1400.29
right oblique longus colli	C7	-9.8548	-83.8054	1376.95	C6	-23.123	-88.7588	1400.37
right oblique longus colli	T1	-6.9064	-82.7651	1370.11	C6	-23.123	-88.7588	1400.37
right oblique longus colli	T1	-5.8954	-77.9131	1351.92	C6	-23.123	-88.7588	1400.37
right oblique longus colli	T1	-5.6645	-72.6621	1333.44	C6	-23.123	-88.7588	1400.37
left ascending longus colli	C1	3.9884	-98.6708	1478.83	C2	21.8695	-88.9591	1459.55
left ascending longus colli	C1	3.9884	-98.6708	1478.83	C3	23.0463	-89.5091	1445.66
left ascending longus colli	C1	3.9884	-98.6708	1478.83	C4	20.1962	-91.4875	1434.86
left ascending longus colli	C1	3.9884	-98.6708	1478.83	C5	19.2098	-91.1737	1421.25
right ascending longus colli	C1	-5.8516	-98.2849	1479.15	C2	-23.1039	-88.9928	1459.57
right ascending longus colli	C1	-5.8516	-98.2849	1479.15	C3	-24.6376	-89.382	1445.62
right ascending longus colli	C1	-5.8516	-98.2849	1479.15	C4	-22.2032	-91.1517	1434.21
right ascending longus colli	C1	-5.8516	-98.2849	1479.15	C5	-18.9625	-91.0746	1421.69
left semispinalis capitis	skull	39.8	-40.4	1503.86	C3	24.4734	-74.4	1443.16
left semispinalis capitis	skull	29.1472	-33	1502.76	C4	23.2547	-73.6	1429.16
left semispinalis capitis	skull	22.11	-29.8	1502.76	C5	21	-69.6672	1419.36
left semispinalis capitis	skull	15.2	-25.8109	1505.56	C6	20.0048	-67	1407.96
left semispinalis capitis	skull	7	-24.8	1506.68	C7	29	-63.4	1391.86
left semispinalis capitis	skull	4.6	-24.9719	1506.56	T1	30.2	-60.2	1391.07
right semispinalis capitis	skull	-40.4	-39.6	1503.73	C3	-24.4	-72.9953	1442.56
right semispinalis capitis	skull	-27.6	-27	1507.09	C4	-24	-72.6391	1428.96
right semispinalis capitis	skull	-22.4	-28.7797	1503.36	C5	-24.4	-70.1078	1417.76
right semispinalis capitis	skull	-12.4	-24.4	1506.72	C6	-27	-68.0859	1404.16
right semispinalis capitis	skull	-7.8	-25.6	1506.24	C7	-30.0022	-63.2	1391.96
right semispinalis capitis	skull	-5.8	-24.8	1506.64	T1	-31.2	-60.4	1391.04
left longissimus capitis	skull	54.9529	-73.9506	1502.96	C5	26.8489	-82.7232	1418.68
left longissimus capitis	skull	54.9529	-73.9506	1502.96	C6	27.2843	-78.5223	1406.39
left longissimus capitis	skull	54.9529	-73.9506	1502.96	C7	29.9093	-71.7351	1399.21
left longissimus capitis	skull	54.9529	-73.9506	1502.96	T1	31.6246	-59.747	1390.53
left longissimus capitis	skull	54.9529	-73.9506	1502.96	T1	30.9554	-46.5149	1377.98
left longissimus capitis	skull	54.9529	-73.9506	1502.96	T1	28.0177	-36.8123	1355.12
right longissimus capitis	skull	-56.1877	-74.1757	1502.93	C5	-29.4209	-82.6026	1418.02

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Table 2 – continued from previous page

Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
right longissimus capitis	skull	-56.1877	-74.1757	1502.93	C6	-27.826	-78.8791	1405.38
right longissimus capitis	skull	-56.1877	-74.1757	1502.93	C7	-32.2322	-70.9595	1399.78
right longissimus capitis	skull	-56.1877	-74.1757	1502.93	T1	-32.6841	-60.2128	1391.56
right longissimus capitis	skull	-56.1877	-74.1757	1502.93	T1	-32.2723	-45.3879	1377.06
right longissimus capitis	skull	-56.1877	-74.1757	1502.93	T1	-30.5651	-35.0076	1356.61
left longissimus cervicis	C2	24.6382	-84.8677	1456.56	T1	-31.8377	-25.6415	1333.46
left longissimus cervicis	C3	25.6161	-85.7428	1443.56	T1	30.622	-34.805	1350.55
left longissimus cervicis	C4	26.2537	-85.4762	1430.36	T1	33.0474	-49.602	1377.85
left longissimus cervicis	C5	27.1878	-83.2094	1415.25	T1	32.2639	-62.469	1391.11
right longissimus cervicis	C2	-25.5093	-84.668	1457.45	T1	30.3358	-25.5379	1333.52
right longissimus cervicis	C3	-26.5417	-85.3331	1446.47	T1	-33.5724	-34.0375	1354.95
right longissimus cervicis	C4	-26.6741	-85.9701	1430.16	T1	-35.6963	-46.3467	1377.01
right longissimus cervicis	C5	-29.2599	-82.4411	1414.75	T1	-35.0157	-63.1637	1391.49
left longus capitis	skull	3.5924	-101.765	1505.27	C3	23.1168	-91.1179	1445.43
left longus capitis	skull	3.5924	-101.765	1505.27	C4	23.1807	-90.0452	1429.27
left longus capitis	skull	3.5924	-101.765	1505.27	C5	20.2257	-88.1377	1414.32
left longus capitis	skull	3.5924	-101.765	1505.27	C6	22.6399	-89.5613	1402.43
right longus capitis	skull	-6.6076	-100.21	1504.86	C3	-25.0819	-90.4599	1445.09
right longus capitis	skull	-6.6076	-100.21	1504.86	C4	-23.404	-88.825	1428.61
right longus capitis	skull	-6.6076	-100.21	1504.86	C5	-21.5337	-89.0151	1414.37
right longus capitis	skull	-6.6076	-100.21	1504.86	C6	-24.3187	-89.5793	1402.74
left cervical rotators	C1	5.2564	-56.0546	1474.79	C2	20.7547	-70.6831	1458.79
left cervical rotators	C1	5.2564	-56.0546	1474.79	C3	21.3124	-72.8646	1445.73
left cervical rotators	C2	10.5948	-63.4425	1456.09	C3	21.3124	-72.8646	1445.73
left cervical rotators	C2	10.5948	-63.4425	1456.09	C4	21.5284	-73.8316	1434.85
left cervical rotators	C3	6.4224	-65.2183	1442.19	C4	21.5284	-73.8316	1434.85
left cervical rotators	C3	6.4224	-65.2183	1442.19	C5	19.1933	-69.1127	1422.6
left cervical rotators	C4	5.8088	-62.8063	1428.06	C5	19.1933	-69.1127	1422.6
left cervical rotators	C4	5.8088	-62.8063	1428.06	C6	19.3994	-68.3592	1409.63
left cervical rotators	C5	6.1863	-66.2193	1418.99	C6	19.3994	-68.3592	1409.63
left cervical rotators	C5	6.1863	-66.2193	1418.99	C7	20.1768	-65.761	1399.74
left cervical rotators	C6	6.5555	-60.3947	1405.37	C7	20.1768	-65.761	1399.74
left cervical rotators	C6	6.5555	-60.3947	1405.37	T1	22	-57.5766	1386.2
left cervical rotators	C7	6.2	-47.2	1391.05	T1	22	-57.5766	1386.2
left cervical rotators	C7	6.2	-47.2	1391.05	T1	21.8	-46.6672	1373.2
right cervical rotators	C1	-5.9785	-56.1229	1474.76	C2	-22.1249	-70.8776	1459.22
right cervical rotators	C1	-5.9785	-56.1229	1474.76	C3	-24.045	-73.4825	1445.7
right cervical rotators	C2	-8.7839	-61.6332	1457.05	C3	-24.045	-73.4825	1445.7
right cervical rotators	C2	-8.7839	-61.6332	1457.05	C4	-21.93	-73.2762	1434.42
right cervical rotators	C3	-7.8245	-66.5005	1444.32	C4	-21.93	-73.2762	1434.42
right cervical rotators	C3	-7.8245	-66.5005	1444.32	C5	-20.2079	-69.1519	1423.31
right cervical rotators	C4	-6.9014	-65.7527	1429.41	C5	-20.2079	-69.1519	1423.31
right cervical rotators	C4	-6.9014	-65.7527	1429.41	C6	-20.7286	-68.3393	1409.58
right cervical rotators	C5	-7.3527	-65.9775	1418.9	C6	-20.7286	-68.3393	1409.58
right cervical rotators	C5	-7.3527	-65.9775	1418.9	C7	-22.009	-66.4846	1399.22
right cervical rotators	C6	-6.8408	-59.5829	1405.73	C7	-22.009	-66.4846	1399.22
right cervical rotators	C6	-6.8408	-59.5829	1405.73	T1	-24.4	-58.7297	1385.8
right cervical rotators	C7	-7.5297	-47.8	1392	T1	-24.4	-58.7297	1385.8
right cervical rotators	C7	-7.5297	-47.8	1392	T1	-25.2	-47.2	1374.13
left splenius capitis	skull	45.4653	-54.4	1501.92	C4	1.345	-47.2047	1423.92
left splenius capitis	skull	49.545	-57	1504.19	C5	0.745	-42.5578	1411.92
left splenius capitis	skull	52.8466	-59.4	1505.92	C6	2.545	-34.8	1401.09
left splenius capitis	skull	54.545	-62.8	1508.22	C7	1.145	-28.8	1392.21

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Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
left splenius capitis	skull	56.145	-66.8	1508.28	T1	1.545	-18.7578	1372.72
left splenius capitis	skull	56.145	-71	1504.02	T1	1.5743	-12.8	1352.12
left splenius capitis	skull	56.145	-76.6	1501.18	T1	0.945	-0.22969	1305.32
right splenius capitis	skull	-44.6	-54.4	1500.32	C4	-2.4	-47.2	1423.86
right splenius capitis	skull	-49.4	-56.2	1503.98	C5	-1.2	-42.8	1412.21
right splenius capitis	skull	-53	-60.2	1505.28	C6	-3.2	-34.8633	1401.12
right splenius capitis	skull	-55.2	-63.4625	1508.32	C7	-1.8	-28.8	1392.21
right splenius capitis	skull	-56.2	-67.2	1507.87	T1	-2.2	-18.7578	1372.72
right splenius capitis	skull	-56.8	-71	1504.02	T1	-2.2	-12.7734	1352.12
right splenius capitis	skull	-56.8	-75.0365	1502.32	T1	-1.6	-0.35469	1305.72
left splenius cervicis	C1	38.145	-83.6	1473.04	T1	1.145	-2.7016	1242.6
left splenius cervicis	C2	25.545	-84.4	1458.9	T1	0.545	-4.2419	1308.2
right splenius cervicis	C1	-38.1439	-83.8647	1476.77	T1	-1.6	-2.5672	1242
right splenius cervicis	C2	-26.78	-83.8	1458.8	T1	-1.6	-3.8	1307.99
left sternocleidomastoid	T1	7.5343	-151.942	1338.08	skull	53.6005	-84.9009	1501.92
left sternocleidomastoid	clavicle	32.5303	-135.006	1357.91	skull	52.9907	-65.7574	1507.59
left sternocleidomastoid	clavicle	47.4419	-130.535	1357	skull	50.4472	-55.0064	1506.42
right sternocleidomastoid	T1	-9.456	-152.534	1337.13	skull	-55.3445	-84.8678	1502.43
right sternocleidomastoid	clavicle	-33.6119	-135.04	1357.92	skull	-55.1964	-65.9781	1508.09
right sternocleidomastoid	clavicle	-48.7291	-130.535	1357.01	skull	-51.7755	-56.0766	1505.83
left levator scapula	C1	37.6707	-82.8553	1473.23	scapula	62.3245	-7.679	1331.78
left levator scapula	C2	24.6487	-83.3404	1458.31	scapula	65.2597	-11.6386	1336.96
left levator scapula	C3	26.6764	-85.1445	1444.18	scapula	71.3411	-17.9321	1346.38
left levator scapula	C4	25.4476	-87.0441	1432.14	scapula	78.7057	-23.9406	1351.51
right levator scapula	C1	-39.6802	-84.0281	1476.52	scapula	-63.7887	-7.8844	1332.09
right levator scapula	C2	-25.9927	-83.5345	1458.51	scapula	-67.9424	-13.3294	1339.36
right levator scapula	C3	-26.9954	-85.5902	1444.91	scapula	-74.5702	-19.3099	1348.62
right levator scapula	C4	-26.223	-87.3886	1432.54	scapula	-79.0626	-23.3925	1351.06
left upper trapezius	skull	24.945	-29.1	1504.38	clavicle	81.8583	-96.3	1359
left upper trapezius	skull	7.545	-23.1	1507.61	clavicle	84.8677	-91.8	1360.5
left upper trapezius	C1	0.02387	-53.1858	1477.33	clavicle	88.4283	-86.1	1361.4
left upper trapezius	C2	-1.5194	-48.6887	1454.08	clavicle	92.145	-81	1362.17
left upper trapezius	C3	-0.55387	-45.6135	1433.38	clavicle	95.445	-76.1855	1362.3
left upper trapezius	C4	0.001697	-46.6554	1422.27	clavicle	98.745	-69.3	1363.34
left upper trapezius	C5	-0.40615	-42.1921	1411.66	clavicle	101.745	-64.2	1363.09
left upper trapezius	C6	-1.756	-34.2094	1400.41	clavicle	109.245	-59.7	1363.78
left upper trapezius	C7	-1.1536	-23.477	1385.92	clavicle	119.745	-55.8	1364.49
right upper trapezius	skull	-30.6	-31.6102	1504.2	clavicle	-84.7664	-92.4	1359.9
right upper trapezius	skull	-6.9	-23.1	1507.6	clavicle	-90.6	-85.4325	1362.3
right upper trapezius	C1	0.02387	-53.1858	1477.33	clavicle	-93.9	-80.7	1362.85
right upper trapezius	C2	-1.5194	-48.6887	1454.08	clavicle	-96.6	-77.0565	1363.2
right upper trapezius	C3	-0.55387	-45.6135	1433.38	clavicle	-98.7	-69.3	1362.95
right upper trapezius	C4	0.001697	-46.6554	1422.27	clavicle	-101.7	-64.8	1363.09
right upper trapezius	C5	-0.40615	-42.1921	1411.66	clavicle	-109.5	-59.7	1363.64
right upper trapezius	C6	-1.756	-34.2094	1400.41	clavicle	-117.3	-56.0554	1363.8
right upper trapezius	C7	-1.1536	-23.477	1385.92	clavicle	-123	-54.6	1364.3
left sternohyoid	T1	7.3023	-128.85	1333.76	C3	6.3869	-132.086	1435.16
left sternohyoid	T1	22.7023	-125.978	1346.56	C3	13.3288	-126.686	1435.96
right sternohyoid	T1	-8.6977	-128.978	1334.96	C3	-7.462	-131.886	1434.56
right sternohyoid	T1	-25.2977	-126.256	1348.16	C3	-14.6977	-126.286	1435.41
left digastric	skull	52.0661	-75.9018	1490.08	C3	12.1944	-124.138	1432.26
left digastric	skull	7.234	-155.798	1430.89	C3	12.1944	-124.138	1432.26
right digastric	skull	-53.6389	-76.7039	1490.71	C3	-12.9975	-126.735	1433.3

Continued on next page

Table 2 – continued from previous page

Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
right digastric	skull	-8.6695	-155.678	1431.13	C3	-12.9975	-126.735	1433.3
left stylohyoid	skull	36.8858	-91.8062	1496.84	C3	9.3528	-127.562	1440.44
right stylohyoid	skull	-39.4005	-91.8749	1495.85	C3	-10.4609	-127.773	1440.47
left mylohyoid	skull	24.2541	-135.243	1460.33	C3	3.1397	-130.357	1441.43
left mylohyoid	skull	2.6896	-164.695	1440.83	C3	3.1397	-130.357	1441.43
right mylohyoid	skull	-24.1906	-136.443	1460.33	C3	-5.4044	-130.143	1441.43
right mylohyoid	skull	-2.8603	-165.024	1441.88	C3	-5.4044	-130.143	1441.43
left omohyoid	C3	12.6446	-129.35	1434	scapula	96.05	-41.7605	1335
right omohyoid	C3	-13.45	-129.35	1431.4	scapula	-96.5488	-41.45	1335.9
left geniohyoid	skull	0.75	-165.347	1443.75	C3	5.25	-128.119	1441.8
right geniohyoid	skull	-1.95	-165.254	1443.9	C3	-6.3	-128.255	1441.65

Table 3: Raw Ligament Origin-Insertion points in the Global Coordinate System. All measurements are in mm.

Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
left ALL	T1	3.0941	-85.9053	1375.25	C7	3.1725	-86.964	1381.0699
ALL	T1	-1.6081	-86.5006	1375.25	C7	-0.8266	-87.8677	1381.3199
right ALL	T1	-5.2998	-85.8936	1375.25	C7	-4.4472	-87.6583	1380.65
left ALL	C7	3.4417	-89.9429	1390.61	C6	3.3958	-92.2735	1395.84
ALL	C7	-0.17019	-90.8549	1390.4301	C6	-0.038352	-92.4891	1395.84
right ALL	C7	-5.3564	-90.0402	1390.83	C6	-4.579	-92.7746	1395.63
left ALL	C6	3.3678	-93.9271	1403.5699	C5	3.6147	-94.9077	1411.84
ALL	C6	0.42917	-93.0797	1403.5699	C5	0.34686	-95.2828	1411.84
right ALL	C6	-3.2273	-94.5969	1403.5699	C5	-3.1269	-95.0475	1411.84
left ALL	C5	2.9736	-96.2369	1419.04	C4	5.7273	-96.3256	1428.0699
ALL	C5	0.1991	-96.3718	1419.04	C4	0.9165	-97.1607	1427.36
right ALL	C5	-5.0552	-95.8923	1419.04	C4	-5.4822	-97.0187	1427.35
left ALL	C4	5.5514	-95.9121	1437.28	C3	3.4818	-97.554	1443.9
ALL	C4	0.097726	-97.6949	1437.09	C3	-0.36119	-97.7511	1443.75
right ALL	C4	-4.297	-97.2417	1437.4399	C3	-3.511	-97.5027	1443.51
left ALL	C3	4.5211	-96.5259	1450.95	C2	3.2068	-97.91	1460.29
ALL	C3	1.0604	-97.8713	1450.77	C2	0.026048	-97.8945	1460.04
right ALL	C3	-2.8063	-97.5909	1450.84	C2	-3.4721	-97.6836	1459.73
left ALL	C2	3.5121	-94.7617	1468.35	C1	2.1427	-100.323	1479.54
ALL	C2	0.70972	-96.2361	1469.0699	C1	0.27028	-100.692	1479.54
right ALL	C2	-1.8002	-95.7415	1469.51	C1	-1.8679	-100.43	1479.54
left ALL	C1	2.1427	-100.323	1479.54	skull	3.5903	-93.0887	1497.7189
ALL	C1	0.27028	-100.692	1479.54	skull	0.27028	-92.8331	1497.7189
right ALL	C1	-1.8679	-100.43	1479.54	skull	-1.6326	-92.8331	1497.7189
left PLL	T1	0.86925	-70.7707	1384.13	C7	-6.1674	-71.8906	1387.29
PLL	T1	-2.3169	-70.4868	1383.23	C7	-2.9376	-73.1954	1387.34
right PLL	T1	-4.7495	-70.6384	1383.91	C7	-0.56728	-72.5939	1387.34
left PLL	C7	0.070905	-75.975	1397.12	C6	0.88502	-77.8979	1399.47
PLL	C7	-3.0966	-76.4052	1397.12	C6	-2.6067	-78.1057	1399.29
right PLL	C7	-7.4662	-76.1464	1398.16	C6	-7.9105	-77.73	1399.97
left PLL	C6	1.8201	-80.9178	1409.03	C5	3.2503	-80.9345	1414.23
PLL	C6	-2.0519	-81.08865	1409.375	C5	-0.5462	-80.66585	1414.17
right PLL	C6	-5.9239	-81.2595	1409.72	C5	-4.3427	-80.3972	1414.11
left PLL	C5	4.09	-83.0203	1423.89	C4	4.3152	-82.2829	1428.85
PLL	C5	-0.36176	-83.6911	1423.97	C4	-0.49113	-82.7152	1428.87
right PLL	C5	-5.9735	-83.167	1424.79	C4	-6.0831	-82.189	1428.87
left PLL	C4	3.8998	-82.5001	1439.34	C3	4.1778	-82.8913	1443.1801
PLL	C4	-0.10998	-83.401	1437.03	C3	-0.095326	-83.5195	1444.9301
right PLL	C4	-3.7088	-83.1447	1438.62	C3	-4.255	-83.06	1443.85
left PLL	C3	3.7358	-82.1218	1452.03	C2	4.2162	-81.6326	1461.05
PLL	C3	-0.74353	-83.143	1450.97	C2	-0.42857	-82.4285	1461.05
right PLL	C3	-4.7245	-82.0688	1453	C2	-5.991	-82.4036	1461.05
left tectoral membrane	C2	2.6549	-82.8321	1463.87	skull	2.6142	-89.8935	1503.52
tectoral membrane	C2	0.18589	-83.0675	1464.15	skull	-0.71475	-89.2564	1503.11
right tectoral membrane	C2	-3.0424	-82.769	1464.92	skull	-3.6276	-90.1991	1504.36
AAOM	C1	-1.8035	-97.8647	1484.64	skull	-0.29863	-92.1139	1497.77
left AAOM	C1	-1.8035	-97.8647	1484.64	skull	-2.7954	-91.2817	1497.51
right AAOM	C1	3.1087	-96.8433	1484.58	skull	2.1981	-91.2817	1497.2
left AAOM	C1	-6.4482	-96.6388	1486	skull	-7.3727	-92.51	1495.2
right AAOM	C1	6.8993	-95.6985	1485.64	skull	6.3593	-91.6978	1494.42

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Table 3 – continued from previous page

Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
left AAOM	C1	-10.7279	-95.4389	1487.13	skull	-10.5656	-92.1139	1492.71
right AAOM	C1	10.3535	-94.5758	1486.47	skull	8.948	-91.2817	1491.87
ISL	T1	-2.4238	-52.1207	1383.94	C7	-1.9379	-58.5647	1392.59
ISL	T1	-2.39054	-49.15798	1383.165	C7	-1.829916	-55.3233	1391.619
ISL	T1	-2.35728	-46.19526	1382.39	C7	-1.721932	-52.0819	1390.648
ISL	T1	-2.32402	-43.23254	1381.615	C7	-1.613948	-48.8405	1389.677
ISL	T1	-2.29076	-40.26982	1380.84	C7	-1.505964	-45.5991	1388.706
ISL	T1	-2.2575	-37.3071	1380.065	C7	-1.39798	-42.3577	1387.735
ISL	T1	-2.22424	-34.34438	1379.29	C7	-1.289996	-39.1163	1386.764
ISL	T1	-2.19098	-31.38166	1378.515	C7	-1.182012	-35.8749	1385.793
ISL	T1	-2.15772	-28.41894	1377.74	C7	-1.074028	-32.6335	1384.822
ISL	T1	-2.12446	-25.45622	1376.965	C7	-0.966044	-29.3921	1383.851
ISL	T1	-2.0912	-22.4935	1376.19	C7	-0.85806	-26.1507	1382.88
ISL	C7	-1.3457	-59.7373	1399.23	C6	-1.3989	-61.7774	1403.52
ISL	C7	-1.34997	-56.63198	1398.544	C6	-1.277884	-59.7758	1403.172
ISL	C7	-1.35424	-53.52666	1397.858	C6	-1.156868	-57.7742	1402.824
ISL	C7	-1.35851	-50.42134	1397.172	C6	-1.035852	-55.7726	1402.476
ISL	C7	-1.36278	-47.31602	1396.486	C6	-0.914836	-53.771	1402.128
ISL	C7	-1.36705	-44.2107	1395.8	C6	-0.79382	-51.7694	1401.78
ISL	C7	-1.37132	-41.10538	1395.114	C6	-0.533012	-48.22968	1400.904
ISL	C7	-1.37559	-38.00006	1394.428	C6	-0.272204	-44.68996	1400.028
ISL	C7	-1.37986	-34.89474	1393.742	C6	-0.011396	-41.15024	1399.152
ISL	C7	-1.38413	-31.78942	1393.056	C6	0.249412	-37.61052	1398.276
ISL	C7	-1.3884	-28.6841	1392.37	C6	0.51022	-34.0708	1397.4
ISL	C6	-0.35876	-65.2252	1411.3199	C5	0.066477	-61.675	1415.0601
ISL	C6	-0.589868	-61.95268	1410.55592	C5	-0.0277224	-60.38488	1414.9601
ISL	C6	-0.820976	-58.68016	1409.79194	C5	-0.1219218	-59.09476	1414.8601
ISL	C6	-1.052084	-55.40764	1409.02796	C5	-0.2161212	-57.80464	1414.7601
ISL	C6	-1.283192	-52.13512	1408.26398	C5	-0.3103206	-56.51452	1414.6601
ISL	C6	-1.5143	-48.8626	1407.5	C5	-0.40452	-55.2244	1414.5601
ISL	C6	-1.64028	-46.3746	1406.374	C5	-0.391748	-52.9667	1413.5601
ISL	C6	-1.76626	-43.8866	1405.248	C5	-0.378976	-50.709	1412.5601
ISL	C6	-1.89224	-41.3986	1404.122	C5	-0.366204	-48.4513	1411.5601
ISL	C6	-2.01822	-38.9106	1402.996	C5	-0.353432	-46.1936	1410.5601
ISL	C6	-2.1442	-36.4226	1401.87	C5	-0.34066	-43.9359	1409.5601
ISL	C5	-1.241	-67.7114	1424.11	C4	0.56631	-63.8426	1425.89
ISL	C5	-1.25396	-65.43118	1423.496	C4	0.5095536	-62.1562	1425.41
ISL	C5	-1.26692	-63.15096	1422.882	C4	0.4527972	-60.4698	1424.93
ISL	C5	-1.27988	-60.87074	1422.268	C4	0.3960408	-58.7834	1424.45
ISL	C5	-1.29284	-58.59052	1421.654	C4	0.3392844	-57.097	1423.97
ISL	C5	-1.3058	-56.3103	1421.04	C4	0.282528	-55.4106	1423.49
ISL	C5	-1.29808	-53.59494	1419.26	C4	0.2257716	-53.7242	1423.01
ISL	C5	-1.29036	-50.87958	1417.48	C4	0.1690152	-52.0378	1422.53
ISL	C5	-1.28264	-48.16422	1415.7	C4	0.1122588	-50.3514	1422.05
ISL	C5	-1.27492	-45.44886	1413.92	C4	0.0555024	-48.665	1421.57
ISL	C5	-1.2672	-42.7335	1412.14	C4	-0.001254	-46.9786	1421.09
ISL	C4	0.15558	-63.6868	1436.7	C3	-0.36394	-64.48	1439.9399
ISL	C4	0.010402	-62.66558	1435.77	C3	-0.2776132	-62.95116	1438.74392
ISL	C4	-0.134776	-61.64436	1434.84	C3	-0.1912864	-61.42232	1437.54794
ISL	C4	-0.279954	-60.62314	1433.91	C3	-0.1049596	-59.89348	1436.35196
ISL	C4	-0.425132	-59.60192	1432.98	C3	-0.0186328	-58.36464	1435.15598
ISL	C4	-0.57031	-58.5807	1432.05	C3	0.067694	-56.8358	1433.96
ISL	C4	-0.54347	-56.64012	1431.42602	C3	-0.2489448	-54.99508	1433.692

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Table 3 – continued from previous page

Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
ISL	C4	-0.51663	-54.69954	1430.80204	C3	-0.5655836	-53.15436	1433.424
ISL	C4	-0.48979	-52.75896	1430.17806	C3	-0.8822224	-51.31364	1433.156
ISL	C4	-0.46295	-50.81838	1429.55408	C3	-1.1988612	-49.47292	1432.888
ISL	C4	-0.43611	-48.8778	1428.9301	C3	-1.5155	-47.6322	1432.62
ISL	C3	-0.4819	-64.9601	1450.04	C2	0.10486	-63.4795	1454.41
ISL	C3	-0.514815	-63.27238	1449.052	C2	-0.039376	-61.92102	1454.082
ISL	C3	-0.54773	-61.58466	1448.064	C2	-0.183612	-60.36254	1453.754
ISL	C3	-0.580645	-59.89694	1447.076	C2	-0.327848	-58.80406	1453.426
ISL	C3	-0.61356	-58.20922	1446.088	C2	-0.472084	-57.24558	1453.098
ISL	C3	-0.646475	-56.5215	1445.1	C2	-0.61632	-55.6871	1452.77
ISL	C3	-0.67939	-54.83378	1444.112	C2	-0.760556	-54.12862	1452.442
ISL	C3	-0.712305	-53.14606	1443.124	C2	-0.904792	-52.57014	1452.114
ISL	C3	-0.74522	-51.45834	1442.136	C2	-1.049028	-51.01166	1451.786
ISL	C3	-0.778135	-49.77062	1441.148	C2	-1.193264	-49.45318	1451.458
ISL	C3	-0.81105	-48.0829	1440.16	C2	-1.3375	-47.8947	1451.13
left PAAM	C2	15.203	-74.716	1470.4	C1	19.003	-73.813	1476.9
left PAAM	C2	14.436	-72.22	1468	C1	16.812	-70.861	1477.2
left PAAM	C2	13.102	-69.223	1466.7	C1	14.699	-67.918	1476.5
left PAAM	C2	10.915	-66.583	1466	C1	12.492	-65.226	1475.2
left PAAM	C2	8.022	-64.611	1465.7	C1	9.9122	-62.952	1473.9
left PAAM	C2	5.0943	-62.717	1465.8	C1	6.719	-61.226	1473.2
left PAAM	C2	2.1856	-60.516	1464.6	C1	3.1457	-60.185	1473.1
PAAM	C2	-0.6049	-59.629	1463.5	C1	-0.53262	-59.867	1473.3
right PAAM	C2	-14.559	-76.542	1470.2	C1	-22.71	-70.809	1476.4
right PAAM	C2	-14.503	-73.941	1467.8	C1	-20.242	-68.407	1475.1
right PAAM	C2	-13.727	-70.757	1466.5	C1	-17.524	-66.054	1474.2
right PAAM	C2	-11.487	-68.211	1465.8	C1	-14.554	-63.91	1473.6
right PAAM	C2	-8.566	-66.21	1465.6	C1	-11.329	-62.139	1473.3
right PAAM	C2	-5.7833	-64.127	1465.6	C1	-7.8602	-60.875	1473.3
right PAAM	C2	-3.1874	-61.475	1464.5	C1	-4.2282	-60.126	1473.4
left PAOM	C1	19.642	-73.343	1483.5	skull	18.843	-72.556	1490.6
left PAOM	C1	18.276	-70.175	1481.4	skull	18.333	-68.188	1491.3
left PAOM	C1	15.594	-67.395	1480.9	skull	16.329	-64.188	1491.2
left PAOM	C1	12.934	-64.45	1480.7	skull	15.028	-59.912	1491.2
left PAOM	C1	10.192	-61.729	1480.5	skull	12.265	-56.471	1490.6
left PAOM	C1	7.0191	-59.485	1480.5	skull	8.4699	-54.38	1491.7
left PAOM	C1	3.5446	-57.208	1480.2	skull	4.3953	-52.632	1492.8
PAOM	C1	-0.037821	-56.183	1480.2	skull	0.15112	-51.391	1493.3
right PAOM	C1	-19.287	-73.393	1483.6	skull	-19.856	-71.308	1491
right PAOM	C1	-18.424	-70.14	1481.1	skull	-18.669	-67.048	1491
right PAOM	C1	-16.287	-67.216	1480.8	skull	-16.948	-62.903	1491.3
right PAOM	C1	-13.339	-64.597	1481.5	skull	-15.058	-58.958	1491.1
right PAOM	C1	-10.042	-62.259	1482.2	skull	-11.833	-55.865	1490.8
right PAOM	C1	-6.7948	-60.147	1482	skull	-8.4928	-53.171	1492.2
right PAOM	C1	-3.5238	-57.98	1481	skull	-4.3525	-51.553	1493.1
left LF	T1	12.804	-57.906	1384.5	C7	12.709	-57.836	1387.1
left LF	T1	11.703	-56.046	1383.4	C7	10.511	-57.44	1387.4
left LF	T1	9.6056	-54.763	1383.3	C7	8.4323	-56.797	1387.6
left LF	T1	7.5089	-53.54	1383.3	C7	6.4982	-55.643	1387.7
left LF	T1	5.4935	-52.117	1383.3	C7	4.7076	-53.932	1388
left LF	T1	3.5293	-50.437	1383.1	C7	2.9868	-52.229	1388.4
left LF	T1	1.5125	-49.026	1382.9	C7	1.2495	-51.204	1388.8
LF	T1	-0.67293	-48.516	1382.9	C7	-0.58684	-51.477	1389.4

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Table 3 – continued from previous page

Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
right LF	T1	-13.276	-59.051	1385.8	C7	-13.682	-58.553	1387.9
right LF	T1	-12.29	-56.925	1385	C7	-12.197	-57.017	1388.3
right LF	T1	-10.975	-54.999	1384.5	C7	-10.429	-55.446	1388
right LF	T1	-9.3595	-53.26	1384.2	C7	-8.4951	-54.293	1387.8
right LF	T1	-7.4709	-51.69	1383.9	C7	-6.5103	-53.947	1388.5
right LF	T1	-5.338	-50.274	1383.6	C7	-4.5214	-53.787	1389.6
right LF	T1	-3.0167	-49.08	1383.2	C7	-2.5306	-52.734	1389.8
left CL	T1	17.938	-66.828	1390.6	C7	17.249	-69.622	1393.8
left CL	T1	20.278	-65.822	1390.4	C7	19.667	-67.996	1394.8
left CL	T1	21.791	-63.756	1391.1	C7	20.453	-65.454	1394.6
left CL	T1	22.979	-61.377	1391	C7	21.175	-62.711	1394
left CL	T1	22.978	-59.221	1389.5	C7	21.797	-60.29	1392.9
left CL	T1	21.55	-58.098	1387.6	C7	21.012	-58.339	1390.9
left CL	T1	19.391	-57.853	1386.2	C7	19.141	-56.998	1389.2
left CL	T1	16.814	-57.92	1385.6	C7	16.589	-56.648	1388
left CL	T1	13.75	-58.019	1385.5	C7	13.982	-57.359	1387.3
left CL	T1	10.792	-58.392	1385.7	C7	11.313	-58.501	1387.3
left CL	T1	8.9244	-59.579	1386.1	C7	9.5827	-59.987	1388.3
left CL	T1	8.9233	-61.913	1386.7	C7	10.181	-62.364	1390.1
left CL	T1	10.407	-64.595	1387.4	C7	10.968	-64.704	1392
left CL	T1	12.601	-66.439	1388.3	C7	11.897	-66.793	1393.1
left CL	T1	14.73	-66.26	1389.7	C7	14.018	-68.802	1392.7
right CL	T1	-20.597	-68.251	1392.4	C7	-20.741	-68.461	1394.5
right CL	T1	-23.417	-68.307	1392.7	C7	-23.109	-67.113	1394.8
right CL	T1	-26.038	-66.58	1393	C7	-24.095	-64.806	1394.7
right CL	T1	-27.769	-64.033	1393.4	C7	-25.007	-62.395	1393.8
right CL	T1	-27.492	-61.539	1391.8	C7	-25.882	-60.368	1392.2
right CL	T1	-25.564	-60.636	1389.4	C7	-25.132	-58.728	1390.7
right CL	T1	-23.556	-59.724	1387	C7	-22.853	-57.766	1389.5
right CL	T1	-21.402	-58.43	1385.2	C7	-20.511	-57.833	1388.3
right CL	T1	-18.537	-57.66	1384.4	C7	-18.049	-58.548	1387.7
right CL	T1	-15.4	-58.209	1384.7	C7	-15.471	-59.574	1388
right CL	T1	-12.754	-59.284	1386.3	C7	-13.532	-60.979	1389.1
right CL	T1	-12.752	-61.396	1388	C7	-12.977	-62.865	1390.8
right CL	T1	-14.17	-64.013	1389.9	C7	-13.542	-65.117	1392.1
right CL	T1	-15.341	-66.24	1391.9	C7	-14.881	-67.203	1392.8
right CL	T1	-17.112	-67.744	1393.1	C7	-17.166	-68.224	1393.6
left LF	C7	9.4555	-65.623	1400.1	C6	9.3785	-66.572	1400.5
left LF	C7	8.0663	-64.225	1400.4	C6	7.7367	-65.478	1400.7
left LF	C7	6.7409	-62.757	1400.2	C6	6.3239	-64.216	1400.8
left LF	C7	5.3772	-61.349	1399.8	C6	4.9836	-62.848	1400.9
left LF	C7	3.8733	-60.129	1399.5	C6	3.5592	-61.433	1401.1
left LF	C7	2.1413	-59.217	1399.3	C6	1.9449	-60.088	1401.5
left LF	C7	0.21713	-58.673	1399.4	C6	0.20895	-59.115	1401.9
LF	C7	-1.7994	-58.523	1399.4	C6	-1.5437	-58.859	1402.1
right LF	C7	-12.547	-66.254	1400.5	C6	-13.07	-66.041	1400.5
right LF	C7	-11.55	-64.642	1400.1	C6	-11.396	-64.968	1400.6
right LF	C7	-10.113	-63.234	1400	C6	-9.7478	-64.04	1400.8
right LF	C7	-8.7341	-61.8	1399.7	C6	-8.1183	-63.103	1401.2
right LF	C7	-7.2973	-60.485	1399.4	C6	-6.4993	-62	1401.6
right LF	C7	-5.6691	-59.443	1399.3	C6	-4.8799	-60.683	1401.9
right LF	C7	-3.8014	-58.783	1399.3	C6	-3.2367	-59.493	1402.1
left CL	C7	15.918	-73.208	1403.4	C6	16.921	-74.618	1406.4

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Table 3 – continued from previous page

Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
left CL	C7	17.954	-73.339	1404.6	C6	19.418	-74.057	1406.5
left CL	C7	20.48	-72.794	1406	C6	20.703	-72.285	1407.5
left CL	C7	22.839	-71.597	1406.8	C6	21.382	-69.895	1408
left CL	C7	24.374	-69.775	1406.4	C6	21.729	-68.058	1406.7
left CL	C7	24.534	-67.642	1404.8	C6	21.561	-66.266	1404.7
left CL	C7	23.094	-66.345	1403.2	C6	20.452	-64.934	1403.2
left CL	C7	21.357	-66.282	1401.2	C6	18.492	-64.923	1401.5
left CL	C7	19.48	-66.162	1399.7	C6	16.329	-65.333	1400.3
left CL	C7	16.839	-65.802	1399.4	C6	14.096	-66.405	1399.7
left CL	C7	14.268	-66.037	1398.9	C6	12.529	-67.891	1400.5
left CL	C7	11.913	-66.858	1399.8	C6	12.031	-69.613	1402.5
left CL	C7	11.108	-68.28	1401.7	C6	12.25	-71.876	1403.5
left CL	C7	11.833	-70.335	1403.2	C6	13.233	-74.166	1403.5
left CL	C7	12.912	-72.382	1403.8	C6	15.212	-75.136	1404.7
right CL	C7	-23.271	-74.967	1404.8	C6	-21.173	-77.737	1405.3
right CL	C7	-25.965	-75.39	1405.1	C6	-23.898	-76.442	1405.3
right CL	C7	-28.813	-73.933	1405.3	C6	-26.697	-75.037	1406.9
right CL	C7	-30.086	-72.555	1403.5	C6	-28.003	-72.748	1406.3
right CL	C7	-29.822	-70.591	1401.4	C6	-29.38	-70.585	1404.2
right CL	C7	-28.422	-68.665	1400	C6	-28.479	-68.42	1402.6
right CL	C7	-26.084	-67.436	1398.8	C6	-26.31	-67.172	1400.8
right CL	C7	-23.404	-66.161	1398.6	C6	-23.26	-66.837	1400.5
right CL	C7	-20.991	-66.481	1399.5	C6	-20.187	-66.746	1400.5
right CL	C7	-18.174	-67.539	1400.7	C6	-17	-65.99	1400.2
right CL	C7	-15.332	-68.355	1401.8	C6	-14.319	-66.565	1400.2
right CL	C7	-14.618	-70.122	1402.9	C6	-14.345	-68.898	1402.1
right CL	C7	-15.785	-72.414	1404.4	C6	-15.063	-71.342	1403.9
right CL	C7	-17.804	-73.661	1405.7	C6	-16.32	-73.964	1404.9
right CL	C7	-20.756	-74.216	1405.8	C6	-18.511	-76.224	1404.8
left LF	C6	9.5227	-72.71	1412.8	C5	11.784	-70.974	1413.6
left LF	C6	8.0427	-71.292	1412.4	C5	9.9626	-69.784	1414.1
left LF	C6	6.5642	-69.883	1412.1	C5	8.1044	-68.703	1414.6
left LF	C6	5.0501	-68.598	1411.4	C5	6.3727	-67.252	1414.6
left LF	C6	3.4486	-67.492	1410.6	C5	4.8709	-65.276	1413.9
left LF	C6	1.6728	-66.481	1410.7	C5	3.4137	-64.167	1414.2
left LF	C6	-0.25773	-65.931	1411.2	C5	1.8638	-64.139	1415.8
LF	C6	-2.2698	-66.204	1411.2	C5	0.30702	-62.633	1415.7
right LF	C6	-13.928	-73.483	1413.4	C5	-11.469	-69.474	1414.2
right LF	C6	-12.435	-72.35	1412.5	C5	-9.4885	-68.46	1414.3
right LF	C6	-11.162	-70.829	1411.7	C5	-7.5243	-67.38	1414.7
right LF	C6	-9.8721	-69.284	1411	C5	-6.0663	-65.878	1414.4
right LF	C6	-8.3296	-68.077	1410.7	C5	-4.8959	-64.046	1413.7
right LF	C6	-6.4277	-67.359	1410.6	C5	-3.4196	-62.34	1413.5
right LF	C6	-4.3444	-66.818	1410.9	C5	-1.528	-61.658	1414.4
left CL	C6	16.88	-78.12	1414.7	C5	16.301	-78.862	1418.4
left CL	C6	19.158	-78.065	1415.9	C5	19.098	-78.434	1418.2
left CL	C6	21.356	-76.801	1416	C5	21.276	-76.761	1419.4
left CL	C6	22.921	-74.849	1415.6	C5	22.496	-74.521	1419.2
left CL	C6	23.375	-72.706	1414.5	C5	23.613	-72.251	1417.6
left CL	C6	22.336	-70.534	1413.5	C5	23.628	-70.519	1415.6
left CL	C6	21.04	-69.713	1411.2	C5	21.744	-68.808	1414.5
left CL	C6	18.735	-69.725	1410.9	C5	19.171	-68.074	1413.9
left CL	C6	16.071	-69.45	1410.9	C5	16.351	-68.41	1413.3

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Table 3 – continued from previous page

Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
left CL	C6	13.675	-69.692	1410.6	C5	13.681	-69.139	1413.6
left CL	C6	11.644	-71.203	1411.1	C5	11.291	-70.859	1414
left CL	C6	10.081	-72.8	1412.7	C5	10.56	-72.502	1415.7
left CL	C6	10.269	-74.727	1414	C5	11.553	-74.166	1417.9
left CL	C6	12.118	-76.604	1414.2	C5	12.147	-76.76	1418.8
left CL	C6	14.434	-77.627	1414	C5	13.658	-78.897	1418.1
right CL	C6	-20.013	-77.702	1416.1	C5	-20.379	-78.85	1420.7
right CL	C6	-22.218	-78.374	1416.5	C5	-23.571	-78.72	1420.4
right CL	C6	-24.455	-78.289	1416	C5	-25.806	-76.827	1419.5
right CL	C6	-26.384	-77.367	1414.9	C5	-26.979	-74.669	1417.5
right CL	C6	-27.655	-75.549	1414	C5	-26.469	-72.185	1415.8
right CL	C6	-27.502	-73.677	1413.1	C5	-24.469	-70.193	1414.5
right CL	C6	-25.751	-72.608	1411.8	C5	-21.746	-68.904	1415.2
right CL	C6	-23.708	-71.622	1411	C5	-18.672	-68.605	1415.7
right CL	C6	-21.564	-70.997	1411.1	C5	-15.762	-69.175	1414.9
right CL	C6	-19.278	-71.252	1411.3	C5	-12.721	-69.727	1414.2
right CL	C6	-17.178	-72.223	1411.2	C5	-10.703	-71.245	1415.8
right CL	C6	-15.427	-73.324	1412.3	C5	-11	-72.78	1418.4
right CL	C6	-14.695	-74.551	1414.2	C5	-12.942	-75.236	1419.2
right CL	C6	-15.698	-76.096	1415.4	C5	-14.592	-77.856	1419.2
right CL	C6	-17.829	-77.416	1415.8	C5	-17.287	-78.964	1420.2
left LF	C5	11.68	-73.511	1424.9	C4	10.848	-72.543	1427.6
left LF	C5	9.5901	-73.931	1423.6	C4	9.27	-71.009	1426.8
left LF	C5	7.8745	-72.816	1422.9	C4	7.8444	-69.191	1426.5
left LF	C5	6.3871	-70.741	1422.6	C4	6.7051	-67.252	1426
left LF	C5	4.9819	-68.281	1422.5	C4	5.4522	-65.236	1425.1
left LF	C5	3.5127	-66.011	1422.6	C4	3.8413	-63.576	1424.3
left LF	C5	1.8334	-64.505	1422.6	C4	1.871	-63.027	1424.8
LF	C5	-0.19412	-64.313	1422.6	C4	-0.45382	-62.905	1425.3
right LF	C5	-11.041	-73.369	1427.4	C4	-11.566	-73.464	1427.5
right LF	C5	-9.6465	-72.084	1426.3	C4	-10.434	-71.557	1426.8
right LF	C5	-8.4726	-70.522	1425.1	C4	-8.7461	-69.953	1426.5
right LF	C5	-7.3311	-68.866	1424	C4	-7.0611	-68.426	1426
right LF	C5	-6.0336	-67.298	1423.1	C4	-5.601	-66.764	1425.3
right LF	C5	-4.3959	-65.995	1422.6	C4	-4.2634	-64.778	1424.8
right LF	C5	-2.3895	-65.024	1422.4	C4	-2.7063	-63.058	1424.8
left CL	C5	21.229	-85.349	1429.9	C4	21.513	-82.308	1431.5
left CL	C5	23.942	-85.097	1428.7	C4	23.681	-81.739	1430.3
left CL	C5	25.336	-83.392	1426.7	C4	25.026	-80.133	1428.8
left CL	C5	25.078	-80.719	1425.8	C4	25.578	-77.972	1427.5
left CL	C5	23.743	-78.08	1425.5	C4	24.919	-75.594	1426.8
left CL	C5	21.78	-75.985	1425.4	C4	23.627	-73.456	1427.4
left CL	C5	19.475	-74.37	1426.5	C4	22.228	-72.306	1429.4
left CL	C5	16.784	-73.704	1427.2	C4	19.831	-71.882	1429.7
left CL	C5	13.853	-73.96	1426.2	C4	17.474	-72.639	1429.9
left CL	C5	11.178	-74.644	1426.3	C4	15.448	-74.017	1429.4
left CL	C5	10.383	-76.231	1428.3	C4	13.937	-75.641	1430.8
left CL	C5	12.389	-78.621	1429.1	C4	14.029	-78.042	1431.8
left CL	C5	14.157	-80.635	1430.3	C4	14.89	-80.326	1432.5
left CL	C5	16.213	-82.574	1430.9	C4	16.739	-82.137	1432.5
left CL	C5	18.617	-84.174	1430.2	C4	19.08	-83.028	1431.9
right CL	C5	-21.632	-83.094	1430.1	C4	-21.698	-82.752	1433
right CL	C5	-24.402	-83.274	1429.4	C4	-24.326	-81.731	1432.4

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Table 3 – continued from previous page

Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
right CL	C5	-26.521	-81.62	1429.1	C4	-26.343	-80.318	1430.7
right CL	C5	-26.909	-79.187	1427.7	C4	-27.041	-77.873	1429.3
right CL	C5	-26.299	-76.834	1426.2	C4	-26.623	-75.23	1428
right CL	C5	-25.043	-74.875	1424.7	C4	-24.701	-73.144	1427.5
right CL	C5	-22.936	-73.054	1424.5	C4	-22.146	-72.127	1428.6
right CL	C5	-20.259	-71.807	1424.9	C4	-19.18	-71.856	1428.3
right CL	C5	-17.412	-71.678	1424.8	C4	-16.273	-71.879	1428.1
right CL	C5	-15.011	-72.966	1425.6	C4	-13.37	-72.229	1427.9
right CL	C5	-13.984	-74.887	1427.3	C4	-11.588	-74.105	1427.9
right CL	C5	-13.245	-77.303	1428.8	C4	-13.254	-75.771	1429.9
right CL	C5	-14.417	-79.155	1430.3	C4	-14.669	-77.95	1431.2
right CL	C5	-16.535	-80.928	1430.9	C4	-16.683	-79.938	1432.1
right CL	C5	-19.035	-82.232	1430.8	C4	-18.992	-81.489	1433
left LF	C4	12.004	-74.936	1438.3	C3	12.852	-73.742	1439.9
left LF	C4	10.726	-72.928	1438.2	C3	10.686	-72.556	1439.9
left LF	C4	9.1505	-71.216	1438	C3	8.7342	-71.017	1440
left LF	C4	7.4246	-69.658	1437.7	C3	6.9483	-69.296	1440
left LF	C4	5.6955	-68.115	1437.3	C3	5.2789	-67.557	1440
left LF	C4	4.0961	-66.458	1436.7	C3	3.6732	-65.781	1439.7
left LF	C4	2.4583	-64.821	1436.3	C3	2.0718	-63.76	1439
LF	C4	0.40671	-63.721	1436.7	C3	0.19882	-62.714	1438.5
right LF	C4	-11.982	-73.714	1438.3	C3	-13.11	-73.299	1440.2
right LF	C4	-10.261	-72.172	1437.9	C3	-10.992	-72.073	1440.5
right LF	C4	-8.5337	-70.688	1437.3	C3	-8.9276	-70.73	1440.8
right LF	C4	-6.686	-69.304	1436.8	C3	-7.0053	-69.176	1440.8
right LF	C4	-4.8644	-67.861	1436.4	C3	-5.2746	-67.413	1440.5
right LF	C4	-3.5111	-65.972	1436.2	C3	-3.6769	-65.686	1440
right LF	C4	-1.8416	-64.25	1436.5	C3	-1.9527	-64.066	1439.3
left CL	C4	20.298	-82.403	1442.9	C3	20.156	-83.442	1446.5
left CL	C4	23.113	-81.83	1443	C3	22.756	-81.853	1447.5
left CL	C4	24.732	-79.938	1442.2	C3	24.276	-80.243	1445.8
left CL	C4	25.559	-78.058	1440.4	C3	25.891	-78.533	1444
left CL	C4	24.816	-76.264	1438.6	C3	26.35	-76.51	1442
left CL	C4	22.951	-74.794	1437.3	C3	25.115	-74.551	1440.1
left CL	C4	20.79	-74.004	1435.9	C3	23.293	-72.842	1439.5
left CL	C4	18.11	-73.714	1435.7	C3	20.437	-72.373	1439.7
left CL	C4	15.492	-73.598	1436.3	C3	17.635	-73.228	1439.8
left CL	C4	13.077	-73.823	1437.5	C3	14.849	-74.342	1440
left CL	C4	11.671	-75.864	1438.5	C3	12.712	-75.767	1441.2
left CL	C4	11.938	-78.149	1439.6	C3	11.761	-76.976	1443.8
left CL	C4	13.416	-79.823	1441.4	C3	12.778	-79.146	1445
left CL	C4	15.383	-81.57	1442.1	C3	14.937	-81.219	1445.7
left CL	C4	17.848	-82.595	1441.8	C3	17.383	-82.313	1446.8
right CL	C4	-20.51	-82.754	1443	C3	-20.153	-84.11	1446.9
right CL	C4	-23.291	-82.954	1443	C3	-22.678	-82.942	1448.1
right CL	C4	-25.913	-82.155	1442.5	C3	-25.374	-81.677	1447.6
right CL	C4	-27.722	-80.257	1442.1	C3	-27.034	-80.007	1445.8
right CL	C4	-27.397	-78.19	1440.1	C3	-27.905	-78.241	1443.6
right CL	C4	-26.269	-76.226	1438.4	C3	-27.088	-76.158	1441.6
right CL	C4	-24.435	-74.527	1437.2	C3	-25.427	-73.815	1441.2
right CL	C4	-21.848	-73.785	1436.5	C3	-22.756	-72.513	1441.5
right CL	C4	-19.193	-73.243	1436	C3	-19.754	-72.581	1442.5
right CL	C4	-16.331	-72.665	1435.7	C3	-17.731	-73.538	1440.8

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Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
right CL	C4	-14.434	-73.257	1436.6	C3	-14.988	-74.521	1440.3
right CL	C4	-14.365	-75.261	1439.1	C3	-13.827	-76.632	1441.7
right CL	C4	-14.682	-77.413	1441	C3	-14.663	-79.123	1443.4
right CL	C4	-16.011	-79.544	1441.8	C3	-15.216	-81.319	1445.3
right CL	C4	-18.25	-81.465	1442.1	C3	-17.482	-82.981	1446.2
left LF	C3	11.915	-73.491	1450.1	C2	13.701	-70.14	1454.6
left LF	C3	10.619	-71.778	1449.7	C2	12.024	-68.511	1454.4
left LF	C3	9.241	-70.023	1449.4	C2	10.154	-67.108	1454.5
left LF	C3	7.6649	-68.467	1449.3	C2	8.1727	-65.859	1454.6
left LF	C3	5.7981	-67.317	1449.4	C2	6.1468	-64.702	1454.6
left LF	C3	3.839	-66.308	1449.4	C2	4.0785	-63.624	1454.5
left LF	C3	1.917	-65.228	1449.3	C2	1.9449	-62.633	1454.1
LF	C3	-0.094882	-64.319	1449.8	C2	-0.27422	-61.917	1453.7
right LF	C3	-12.581	-72.873	1450.9	C2	-13.333	-70.222	1454.6
right LF	C3	-10.99	-71.425	1450.3	C2	-12.172	-68.431	1453.6
right LF	C3	-9.1463	-70.227	1450.1	C2	-10.479	-66.881	1453
right LF	C3	-7.217	-69.113	1450.1	C2	-8.5429	-65.579	1452.9
right LF	C3	-5.3709	-67.918	1450	C2	-6.5946	-64.426	1453.6
right LF	C3	-3.7327	-66.51	1449.6	C2	-4.684	-63.136	1454
right LF	C3	-2.0621	-65.026	1449.5	C2	-2.5677	-62.098	1453.9
left CL	C3	16.768	-78.726	1456.2	C2	16.791	-79.372	1460.7
left CL	C3	19.247	-78.238	1455.7	C2	18.807	-78.642	1459.2
left CL	C3	21.343	-77.344	1454.4	C2	20.408	-76.72	1459.3
left CL	C3	22.993	-76.004	1452.8	C2	21.713	-74.822	1458.9
left CL	C3	23.311	-74.438	1450.8	C2	22.649	-73.519	1457.1
left CL	C3	22.621	-73.254	1448.5	C2	22.573	-71.597	1455.6
left CL	C3	20.858	-72.838	1446.8	C2	21.203	-69.694	1455.2
left CL	C3	18.485	-72.767	1445.6	C2	18.96	-69.185	1454.4
left CL	C3	16.059	-72.241	1445.1	C2	16.716	-69.681	1453.8
left CL	C3	14.235	-72.174	1446.9	C2	14.834	-71.19	1453.9
left CL	C3	12.794	-73.179	1448.8	C2	13.369	-72.463	1455.3
left CL	C3	11.289	-74.069	1450.7	C2	13.049	-74.288	1456.8
left CL	C3	12.075	-76.47	1451.3	C2	12.746	-75.91	1458.7
left CL	C3	13.611	-77.396	1453.2	C2	13.28	-78.009	1459.4
left CL	C3	14.47	-78.098	1455.6	C2	14.668	-78.927	1461.1
right CL	C3	-21.722	-80.108	1455.5	C2	-21.324	-81.038	1459.4
right CL	C3	-24.24	-78.712	1456.3	C2	-23.016	-79.241	1461.5
right CL	C3	-25.674	-77.757	1454.1	C2	-24.9	-77.135	1460.9
right CL	C3	-25.912	-76.636	1451.6	C2	-25.688	-74.954	1459.1
right CL	C3	-25.507	-75.058	1449.3	C2	-25.075	-73.13	1456.8
right CL	C3	-24.251	-73.524	1447.2	C2	-23.467	-71.604	1454.8
right CL	C3	-21.916	-72.698	1445.5	C2	-21.095	-70.483	1453.5
right CL	C3	-19.526	-72.488	1446.5	C2	-18.312	-70.649	1452.4
right CL	C3	-16.98	-71.948	1447.4	C2	-15.579	-70.417	1453.1
right CL	C3	-14.412	-71.499	1448.5	C2	-13.439	-70.674	1455.3
right CL	C3	-13.341	-72.631	1450.7	C2	-12.495	-72.719	1457.3
right CL	C3	-13.159	-75.278	1451.7	C2	-13.43	-75.398	1457.8
right CL	C3	-14.618	-77.237	1453	C2	-15.082	-77.431	1459
right CL	C3	-16.61	-78.804	1454	C2	-16.417	-79.809	1460.5
right CL	C3	-18.917	-79.552	1455.5	C2	-18.118	-81.765	1460.7
left CL	C2	12.629	-94.608	1473.3	C1	12.161	-92.693	1474.3
left CL	C2	15.621	-94.365	1471.1	C1	15.39	-91.911	1473.9
left CL	C2	18.781	-92.571	1469.7	C1	18.315	-90.222	1473.2

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Table 3 – continued from previous page

Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
left CL	C2	20.619	-89.424	1469.5	C1	20.453	-87.72	1472.4
left CL	C2	21.169	-85.601	1469.6	C1	21.453	-84.561	1471.9
left CL	C2	20.955	-81.847	1469.6	C1	21.69	-81.227	1471.3
left CL	C2	19.55	-78.46	1470.3	C1	21.165	-77.891	1471.8
left CL	C2	16.978	-75.84	1471.1	C1	19.163	-75.803	1473.2
left CL	C2	13.442	-75.423	1471.7	C1	16.044	-75.507	1474.9
left CL	C2	11.254	-78.264	1473.3	C1	13.1	-76.591	1476.2
left CL	C2	9.9169	-81.554	1474.5	C1	11.178	-79.128	1477.1
left CL	C2	8.3504	-84.867	1475.2	C1	9.6994	-82.186	1477.6
left CL	C2	7.5151	-88.299	1476.5	C1	8.9273	-85.386	1477.5
left CL	C2	7.2967	-92.058	1476.4	C1	8.5145	-88.814	1477.2
left CL	C2	8.9244	-94.775	1474.6	C1	9.3692	-91.603	1475.9
right CL	C2	-16.384	-95.389	1471.9	C1	-16.654	-94.032	1475.3
right CL	C2	-19.486	-94.103	1470.4	C1	-19.468	-93.513	1478
right CL	C2	-22.313	-91.746	1469.7	C1	-22.146	-91.763	1476
right CL	C2	-23.37	-88.25	1469.6	C1	-24.27	-88.699	1475.6
right CL	C2	-23.094	-84.566	1470.2	C1	-25.171	-85.101	1474.9
right CL	C2	-21.802	-81.167	1470.6	C1	-25.153	-81.335	1474.9
right CL	C2	-19.542	-78.162	1470.9	C1	-23.247	-78.102	1475.3
right CL	C2	-16.303	-76.772	1471.6	C1	-20.097	-76.97	1477.3
right CL	C2	-13.358	-78.693	1472.8	C1	-16.503	-77.873	1477.5
right CL	C2	-12.408	-81.775	1474.7	C1	-13.554	-80.207	1477.8
right CL	C2	-10.429	-84.715	1475.6	C1	-11.126	-83.078	1478.5
right CL	C2	-8.7874	-87.961	1475.8	C1	-9.3542	-86.425	1478.8
right CL	C2	-8.1592	-91.908	1475.5	C1	-8.7912	-90.04	1478
right CL	C2	-9.3989	-94.911	1474.6	C1	-10.012	-93.101	1476.3
right CL	C2	-12.932	-95.576	1473.2	C1	-12.835	-95.555	1476.8
left CL	C1	14.761	-93.904	1488.9	skull	14.682	-91.799	1494.8
left CL	C1	18.948	-93.109	1487.8	skull	18.667	-90.216	1494.2
left CL	C1	20.63	-90.201	1485.9	skull	22.099	-87.702	1493.4
left CL	C1	21.031	-86.103	1484.3	skull	24.87	-84.411	1493
left CL	C1	21.551	-82.262	1484.5	skull	26.738	-80.499	1493.1
left CL	C1	22.758	-78.991	1486.7	skull	27.009	-76.222	1493.3
left CL	C1	22.654	-74.604	1487.3	skull	24.633	-72.6	1493.2
left CL	C1	18.955	-75.91	1487.2	skull	20.569	-71.325	1492.2
left CL	C1	15.044	-75.131	1486.5	skull	17.262	-72.678	1491.7
left CL	C1	12.347	-77.876	1484.8	skull	15.976	-74.889	1494.3
left CL	C1	11.54	-80.323	1481.4	skull	15.106	-77.784	1490.3
left CL	C1	10.577	-84.054	1481.6	skull	13.322	-81.279	1490.6
left CL	C1	8.9868	-87.738	1482.4	skull	11.134	-84.994	1491
left CL	C1	9.2536	-91.468	1484.4	skull	9.22	-88.886	1491
left CL	C1	11.589	-94.294	1486.5	skull	10.688	-92.632	1492.1
right CL	C1	-15.041	-94.182	1488.8	skull	-15.695	-91.922	1494.8
right CL	C1	-19.098	-92.841	1489.2	skull	-19.229	-90.804	1495
right CL	C1	-21.345	-89.965	1488.3	skull	-22.133	-88.904	1493.8
right CL	C1	-22.611	-86.185	1487.2	skull	-24.648	-86.38	1493.1
right CL	C1	-23.514	-82.239	1487	skull	-26.698	-83.289	1492.9
right CL	C1	-24.229	-78.623	1488.2	skull	-26.689	-79.785	1492.1
right CL	C1	-24.097	-74.08	1487.6	skull	-25.235	-76.405	1491.6
right CL	C1	-21.05	-75.391	1488.3	skull	-22.333	-74.253	1490.8
right CL	C1	-17.158	-75.515	1487.2	skull	-18.994	-74.67	1489.2
right CL	C1	-14.066	-77.713	1485.9	skull	-16.645	-77.261	1489
right CL	C1	-13.074	-80.928	1483.8	skull	-15.166	-80.409	1490.1

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Muscle	OriginSeg	OriginX	OriginY	OriginZ	InsertSeg	InsertX	InsertY	InsertZ
right CL	C1	-11.686	-84.402	1482.7	skull	-13.836	-83.822	1490.3
right CL	C1	-9.997	-88.166	1482.9	skull	-11.828	-86.821	1491
right CL	C1	-10.115	-91.108	1485.2	skull	-10.228	-90.223	1491.4
right CL	C1	-11.767	-94.135	1487.6	skull	-10.874	-92.589	1492.2
transverse ligament	C1	8.8393	-87.1467	1480.05	C1	-9.7487	-86.7384	1479.55
apical ligament	C2	-0.33413	-88.2332	1488.73	skull	-0.29863	-89.1198	1502.28
left alar ligament	C2	4.0878	-85.1432	1485.03	skull	10.1044	-87.1205	1491.39
right alar ligament	C2	-4.1071	-85.2122	1485.8101	skull	-10.5033	-89.2011	1491.04