**Supplementary Table 2:** Volume of the knee extensors, knee flexors and hip/thigh adductors during and after bed-rest: per-protocol analysis

|  |  |
| --- | --- |
| **Group** | **Study-time** |
| BDC(cm3) | HDT27/28(%) | HDT55/56(%) | R+14(%) | R+90(%) | R+180(%) |
| *Rectus femoris*  |
| CTR | 307.9(40.2) | -1.9(6.6)% | -5.6(7.1)% | -4.3(7.5)% | 0.2(4.6)% | 0.5(5.3)% |
| RE | 324.8(47.9) | 0.4(4.4)% | 1.8(3.9)% | 3.6(3.7)% | 6.0(4.7)%\* | 4.6(6.9)% |
| RVE | 304.2(41.5) | -2.6(5.5)% | 0.2(5.2)% | 2.2(5.1)% | 3.0(5.2)% | 3.9(8.3)% |
| *Vasti (study-time×group: p<0.001; A,b)* |
| CTR | 1949.2(138.8) | -9.4(6.4)%‡ | -16.0(7.8)%‡ | -8.1(5.9)%† | -3.6(6.8)% | -0.4(7.4)% |
| RE | 2017.9(366.3) | -1.7(6.2)% | -1.4(6.1)% | -0.7(6.7)% | 3.5(7.4)% | 1.8(9.1)% |
| RVE | 1910.7(280.2) | -3.3(8.3)% | -4.4(10.0)% | 0.1(7.1)% | 1.7(7.8)% | 0.4(7.5)% |
| *Lateral hamstrings*  |
| CTR | 375.2(43.5) | -6.3(7.1)%\* | -13.7(7.5)%‡ | -5.2(7.6)% | -2.3(5.4)% | -0.5(5.8)% |
| RE | 380.4(66.4) | -6.2(5.4)%\* | -9.8(6.0)%‡ | -2.7(5.7)% | 3.1(5.1)% | 0.6(5.3)% |
| RVE | 338.7(44.1) | -6.2(8.5)% | -10.0(8.9)%† | -1.4(7.0)% | 3.7(6.9)% | 2.4(7.5)% |
| *Medial hamstrings*  |
| CTR | 521.3(48.7) | -7.2(5.3)%† | -12.9(5.1)%‡ | -5.7(5.3)%\* | -1.6(6.0)% | -0.1(5.7)% |
| RE | 528.2(98.3) | -6.5(5.0)%† | -9.7(5.0)%‡ | -2.6(5.3)% | 3.3(4.3)% | 1.4(5.1)% |
| RVE | 463.8(63.2) | -6.8(8.3)% | -10.0(8.9)%† | 0.2(6.8)% | 4.6(6.2)% | 3.0(6.5)% |
| *Adductor brevis* |
| CTR | 111.3(15.7) | 0.9(11.0)% | -0.1(5.5)% | 0.6(8.8)% | 2.5(4.9)% | 0.4(13.2)% |
| RE | 125.3(28.8) | -1.0(15.3)% | -3.1(21.2)% | 4.7(14.5)% | 6.2(10.6)% | 2.0(15.3)% |
| RVE | 103.9(8.0) | 8.1(7.9)%\* | 13.7(15.0)% | 15.6(11.5)%\* | 16.1(22.0)% | 13.5(22.6)% |
| *Adductor Longus*  |
| CTR | 182.5(17.0) | -1.4(5.1)% | -5.5(4.5)%† | -2.6(3.6)% | 1.5(5.8)% | -1.0(5.2)% |
| RE | 212.4(26.7) | -3.3(5.2)% | -4.6(7.5)% | -3.7(4.9)% | 1.3(6.0)% | 0.4(5.8)% |
| RVE | 162.6(17.1) | 3.6(7.6)% | 2.5(8.9)% | 2.1(9.1)% | 5.4(7.3)% | 5.4(9.7)% |
| *Adductor Magnus*  |
| CTR | 599.2(73.7) | -5.6(7.2)% | -9.9(7.8)%† | -3.1(6.2)% | -1.2(4.0)% | -0.2(5.5)% |
| RE | 633.9(147.2) | -1.0(4.6)% | -1.3(4.6)% | 2.1(2.9)% | 4.5(3.7)%\* | 3.5(4.0)% |
| RVE | 554.2(57.5) | -1.7(2.9)% | -2.6(3.5)% | 1.1(4.8)% | 3.5(4.8)% | 2.3(6.1)% |
| *Pectineus* |
| CTR | 72.0(8.6) | -2.2(7.1)% | -1.3(9.6)% | -3.9(7.1)% | 0.4(7.0)% | -4.7(8.7)% |
| RE | 79.7(11.0) | -2.7(4.6)% | -1.8(6.4)% | -0.6(7.6)% | 0.4(6.2)% | -2.0(14.6)% |
| RVE | 65.0(13.3) | 1.3(6.2)% | -1.1(10.8)% | 3.1(7.0)% | 3.3(8.9)% | -0.8(9.3)% |
| *Gracilis* |
| CTR | 109.1(16.6) | 4.0(7.0)% | -2.3(7.3)% | 2.2(8.1)% | 0.8(7.8)% | 2.5(6.8)% |
| RE | 122.5(26.0) | 0.5(4.4)% | -0.3(5.1)% | 1.4(5.7)% | 4.9(4.4)% | 3.7(5.3)% |
| RVE | 113.7(21.8) | -2.1(12.0)% | -4.6(13.0)% | 2.1(11.6)% | 5.7(11.8)% | 1.2(12.9)% |
| *Sartorius* |
| CTR | 181.8(26.6) | -1.8(4.5)% | -7.4(4.5)%‡ | -2.0(4.2)% | -3.6(8.0)% | -0.9(5.2)% |
| RE | 173.5(48.5) | -0.5(4.6)% | 0.0(5.1)% | 3.8(5.5)% | 7.6(4.4)%† | 4.0(9.2)% |
| RVE | 177.6(36.0) | -3.3(13.8)% | -5.0(14.1)% | 3.7(10.9)% | 4.8(11.3)% | 4.8(12.3)% |
|   |   |   |   |   |   |   |

\*: *p*<0.05; †: *p*<0.01; ‡: *p*<0.001 and indicate significance of difference to baseline value. CTR: inactive control group, RE: resistive exercise only group, RVE: resistive exercise with whole-body vibration group. *P*-value from three-group AVOVA is presented. "A" or "B" (*p*<0.01) and "a" or "b" (*p*<0.05) refer to differences on two-group AVOVA for CTR vs. RE or CTR vs. RVE. All p-values adjusted for false positives via the “false discovery rate” method.