**Supplementary Information 3**.

‘Residual actuators’ at the pelvis-body segment in the human and AL 288-1 simulations. Relative values are in brackets. Residual forces were all <5% of the maximum GRF magnitude (values proportional to the applied GRF, but differences were minute; here the residual values are reported for the 1 \* BW simulation) and the residual moments were <1% of the height of the COM \* maximum GRF.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| **Human** | 7.365  (1.0%) | 0.437  (0.062%) | 0.436  (0.061%) | -3.590 (0.50%) | 0.432 (0.061%) | -44.350 (0.62%) |
| **AL 288-1** | 3.798 (1.1%) | 0.523 (0.15%) | 0.224  (0.066%) | 3.052 (0.90%) | 0.331  (0.098%) | -2.934  (0.86%) |