**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.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | $$Fx$$ | $$Fy$$ | $$Fz$$ | $$Mx$$ | $$My$$ | $$Mz$$ |
| **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%) |