**Title:** Adding carbon fiber to shoe soles may not improve running economy:

a muscle-level explanation

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**Supplementary Table 1.** Number of participants that yielded the lowest and highest value for select biomechanical variables.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Footwear Bending Stiffness (kN/m) | Ground Contact  Time | | Hip Moment | | Knee Moment | | Ankle Moment | | Soleus Force | | Soleus Fascicle Length\* | | Soleus Fascicle Velocity\* | |
| Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High |
| 13.0 ± 1.0 | 6 | 1 | 7 | 1 | 6 | 3 | 1 | 8 | 4 | 7 | 1 | 3 | 4 | 2 |
| 31.0 ± 1.5 | 3 | 4 | 1 | 4 | 3 | 4 | 6 | 2 | 4 | 2 | 2 | 3 | 1 | 4 |
| 43.1 ± 1.6 | 3 | 3 | 4 | 4 | 1 | 3 | 4 | 1 | 4 | 3 | 5 | 1 | 2 | 4 |
| 84.1 ± 1.1 | 3 | 7 | 3 | 6 | 5 | 5 | 4 | 4 | 3 | 3 | 3 | 4 | 4 | 1 |

\*n=11 participants due to technical difficulties.



**Supplementary Figure 1.** Gross aerobic power versus footwear bending stiffness for each participant.