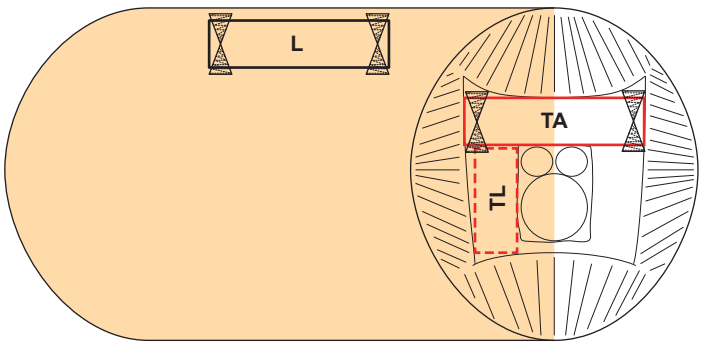

Fig. S1. Arm muscle dissection methodology employed for biomechanics and histology. Transverse aboral (TA, red box), transverse lateral (TL, dashed red box), longitudinal muscle (L, black box) and the position of the knots used to tighten the muscle strips to the Dual Mode Lever arm system are represented.

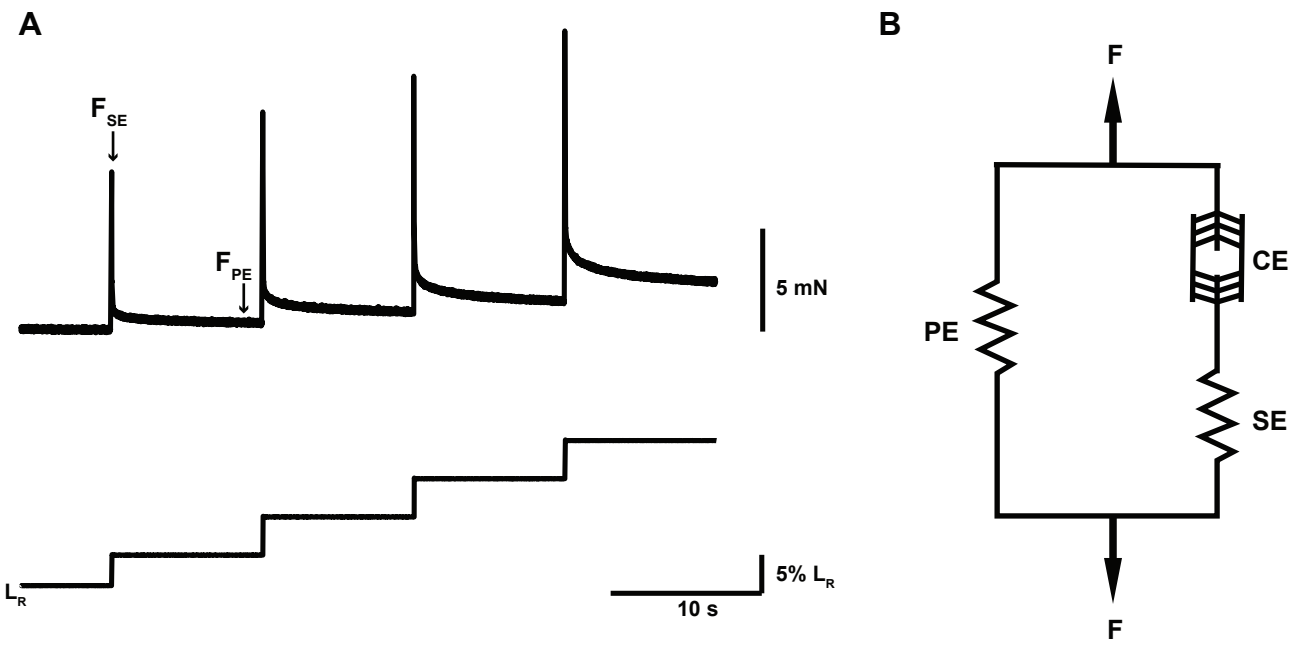

Fig. S2. Elastic and contractile elements of muscle forces. (A) Representative traces of the step-stretch protocol. The positions along the traces where the SE elastic force (F_{SE}) and the PE elastic force (F_{PE}) were measured are indicated by the arrows. **(B)** Hill model/diagram showing contractile component (CE), parallel elastic component (PE), series elastic component (SE) and the resulting force (F).

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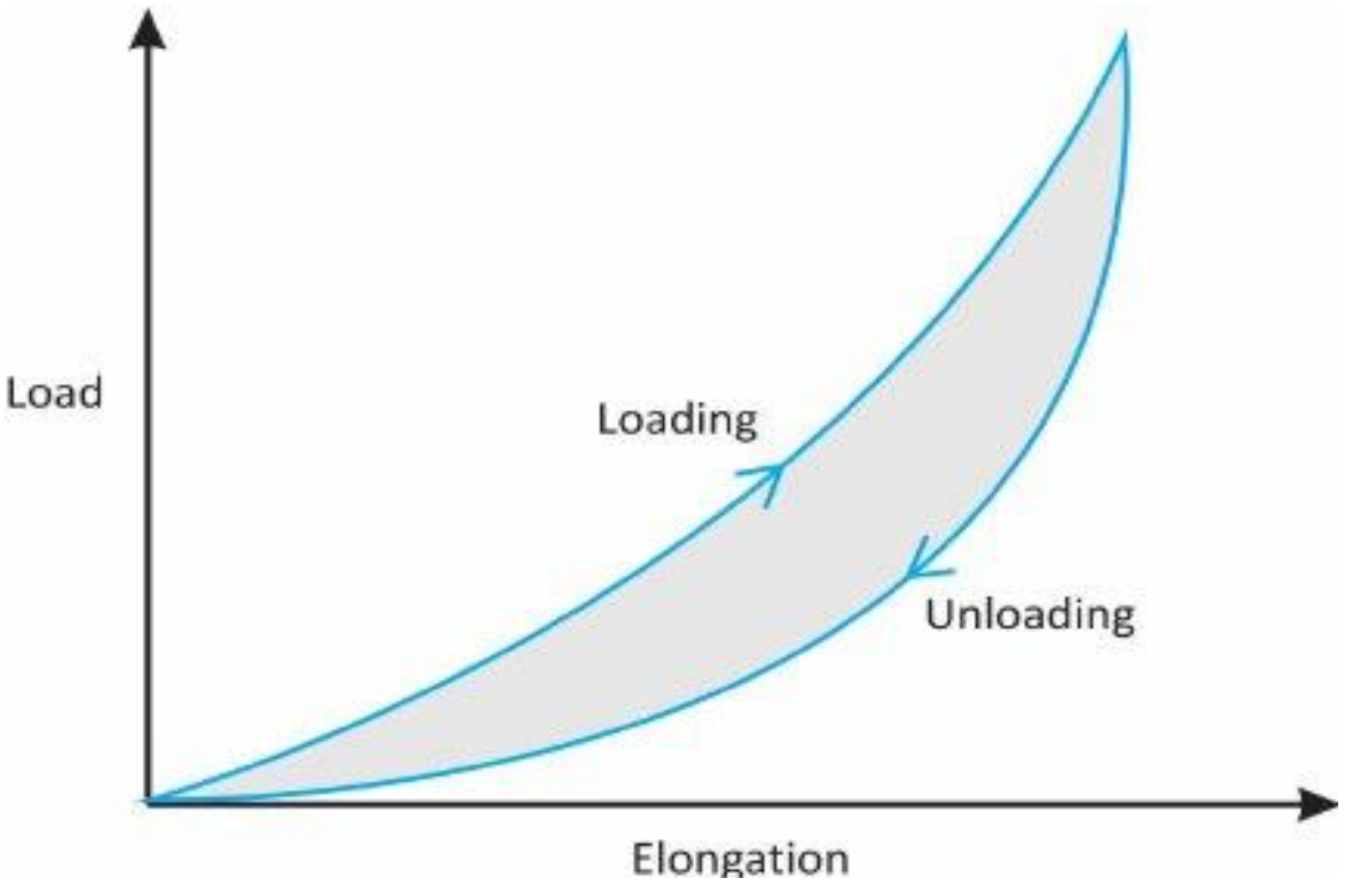

Fig. S3. Hysteresis percentage. Stress-strain curves during the loading and unloading phases (blue lines). Total energy input to the system is calculated as the area under the loading phase (E_i, red lines in the graph). The energy dissipated is represented by the area enclosed between the loading and unloading phases (E_d, gray area in the graph) and is calculated as the difference between the area under the loading phase and the area under the unloading phase.