

Review of: "Modelling Skeletal Muscle Motor Unit Recruitment Contributions To Contractile Function: Part 1 — Velocity, Force and Power"

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Potential competing interests: No potential competing interests to declare.

The paper is an ambitious attempt to model the response of a muscle given different motor unit profiles (i.e., proportion of muscle fiber types).

The explanations of the mechanical concepts of the model (pages 12-14) require better clarification, and more illustrations are recommended, such as how the parallel fibers mechanically interact with the end fixations. Figure 4 is difficult to interpret, especially what is happening on the right side. What are "Calculations"? Are any of the equations in the paper programmed into LabVIEW? Where?

The authors do not provide a mechanical justification for the model, and in particular, equation 9. Table 2 provides 5 muscle fiber properties that are based on single motor unit experiments. It is not justifiable that parallel fibers with the same end fixations can have their individual forces and velocities summed (Eqs 9&10) when they have different contraction rates. Won't the contributions of the slower motor units disappear when the faster units activate? More explicit descriptions of the mechanical underpinnings of the unit recruitments are needed.

I found the large tables in the middle of the text difficult to absorb and recommend describing extracts of the tables in the text and using appendices for the full results.