

# EXERCISE AND SPORT SCIENCES REVIEWS



## ***ESSR Journal Club***

**Covered Article:** “Origin and Development of Muscle Cramps” by Marco Alessandro Minetto, Aleš Holobar, Alberto Botter, and Dario Farina

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**Journal Club Author:** Roger Enoka

1. What is a “cramp discharge”?
2. What criteria are used to identify an involuntary contraction as a muscle cramp?
3. What is “threshold frequency,” and how does it differ in individuals who experience muscle cramps more often than normal?
4. What are fasciculation potentials (Figure 1)?
5. Describe the two hypotheses related to the origin of muscle cramps.
6. List three observations that are consistent with muscle cramps being produced by action potentials that are generated in motor neurons.
7. How do the data in Figures 2 and 3 make a case for the central origin of muscle cramps?
8. What is a positive-feedback loop?
9. How is the delayed onset of muscle cramps by carbohydrate-electrolyte supplementation consistent with a central origin for the involuntary contraction?
10. What is motor neuron hyperexcitability?
11. By what mechanism can some drugs (baclofen, diazepam, gabapentin, carbamazepine) reduce the incidence of muscle cramps?