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TITLE: Functional blockade of impulse trains caused by acute nerve compression

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ABSTRACT:

Acute nerve compression was studied by recording single units which were stimulated with trains of stimuli of different stimulus repetition-rates. (Anesthetized cat) The action potentials were required to traverse the compressed region of the nerve. It was found that the first nerve impulse in a train always traversed the compressed region, but that transmission of the remaining impulses in the train was variable. Sometimes all but the first impulse was blocked.

The results indicate that a fast stimulus repetition-rate is better at detecting the conduction-impaired compressed region than are slow rates. The reason that all but the first impulse was blocked could be explained by small action potentials within the compressed region that fired but were not large enough to propagate.

Overall, these results indicate that the best test for "normalcy" is a fast stimulus repetition-rate. The implication is that any measures that evoke a nervous system response for clinical purposes should utilize a fast stimulus repetition-rate.