PERSISTENT INSTABILITY OF FIRING OF HINDBRAIN NEURONS DURING EXTENDED LATENCY OF EVOKED LOCOMOTION IN SALAMANDER

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Transition from rest to locomotion (rl-transition) was evoked by repetitive electric stimulation of the mesencephalic locomotor region in the salamander *Ambystoma tigrinum*. When near-threshold train of stimuli was delivered the latency of locomotion could be extended up to 15 s. Current (5 to 14 microA) and interstimulus interval (ISI, 80 to 200 ms) of the applied train were interchangeable for the macro-effect in certain span.

Extended latency allowed to record dozens of impulses from single hindbrain neurons during rl-transiton. Neurons, which were recruited by the near-threshold train, also gave synaptic responses to train that did not elicit locomotion. Both latency of impulses and inter-impulse interval scattered non-regularly. Modal latency could change gradually or steeply during a trial. Generally, the closer was the train to the locomotor threshold the higher was the mean rate of firing.

Irregular alternation of two or three consecutive numbers of stimuli (k-1, k, k+1 where $k?1$) between adjacent impulses was common. Usually impulses originated in a portion of ISIs but during certain epoch of a trial in every ISI. Latency of impulses could fluctuate in certain relation to k-alternations but also during epochs of $k=1$. Ratio of various k-values changed gradually during the train or a new k-state arose abruptly in addition to or instead of preexisting one. Mostly, impulses were time locked to stimuli with latency 15 to 50 ms. There were also delayed impulses, mainly at the middle or near the end of ISI. If two impulses appeared in the same ISI (k=0), the first one was the early time-locked and the other was delayed. Distribution of latency of time-locked impulses could have two modes, the biggest being ordinarily 5-10 ms longer.