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  Psychomotor delay and a neurodynamic explanation of Fitts' law

  An intrinsic property of human motor behaviour is a trade-off between speed and accuracy in target directed movements. This is classically described by Fitts' law. We show that Fitts' law may be derived from a simple neurodynamic model of the sensory-motor feedback processes underlying movement trajectory formation, and that within this model widely observed inconsistencies of Fitts' law with experimental data are explainable as a consequence of psychomotor delay. This model further provides a relationship between the coefficients occurring within Fitts law and physical properties of the motor circuit from which it is possible to indirectly estimate the psychomotor delay involved in performing a motor task. These estimates also support the existence of neural mechanisms that compensate for delay by predicting the response of the body to outflow motor commands.

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