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John Milton* (jmilton@jsd.claremont.edu), Joint Science Department, 925 North Mills Ave., Claremont, CA 91711, and **Elizabeth Balch, Meredith Strauss** and **Ferrin Ruiz**. *Stick balancing at the fingertip: Legends of the fall*. Preliminary report.

Mathematical models indicate that the upright position of an inverted pendulum with delayed feedback can be stable for certain choices of the parameters. However, when a stick is balanced at the fingertip it invariably falls. High speed motion capture techniques are combined with kinesmatic analysis to investigate stick falling. The observations support the existence of an intermittent type of control strategy (“act and wait”) in which the feedback is switched on (act) and off (wait) whenever important dynamical variable cross pre-set thresholds. It is shown that even simple mathematical models of this type are able to capture much of the dynamics observed in experiments that involve human balance control. (Received March 04, 2008)