

**Changes of Upper-Limb Kinematics During Practice of a Redundant Motor Task in
Patients with Parkinson's Disease**

Supplementary Information

Supplementary Figure S1

Supplementary Figure S2

Se-Woong Park^{1*}, Jinseok Oh^{2*}, Jeh-Kwang Ryu³, Min-Jung Shin^{3,4}, Jee-Young Lee⁵, Kyoung-Min Lee^{4,6}, and Dagmar Sternad⁷

¹Department of Kinesiology, University of Texas at San Antonio, San Antonio, TX

²Division of Developmental-Behavioral Pediatrics, Children's Hospital Los Angeles, Los Angeles, CA

³Department of Physical Education, Dongguk University, Seoul, Korea

⁴Interdisciplinary Program in Cognitive Science, Seoul National University, Seoul, Korea

⁵Boramae Medical Center, Seoul, Korea

⁶School of Medicine, Seoul National University, Seoul, Korea

⁷Department of Biology, Electrical & Computer Engineering, and Physics, Northeastern University, Boston, MA

* Equally contributed

Correspondence Address: Se-Woong Park
University of Texas at San Antonio
Department of Kinesiology
One UTSA Circle
San Antonio, TX 78249
Email: sewoong.park@utsa.edu
+1-210-458-6023

Supplementary Figures

Figure S1. Changes of individual performance outcome and release angle and velocity over practice and retention. **A,B,C:** Change of the performance error during the three practice days (D1, D2, and D3) and after 1-week retention interval (Ret) for each group. Thin lines show the progress of individual participants. A thick line shows the group mean. **D,E,F:** Change of the angle at release during the three practice days (D1, D2, and D3) and after 1-week retention interval (Ret) for each group. **G,H,I:** Change of the velocity at release during the three practice days (D1, D2, and D3) and after 1-week retention interval (Ret) for each group. The gray lines are the exponential fits of the groups.

Figure S2. Changes of individual timing variables. **A,B,C:** Block-by-block changes of the Timing Error during the three practice days (D1, D2, and D3) and after 1-week retention interval (Ret) for each group. **D,E,F:** Block-by-block changes of the Timing Window during the three practice days (D1, D2, and D3) and after 1-week retention interval (Ret) for each group. **G,H,I:** Block-by-block changes of the median Inter-Release Interval during the three practice days (D1, D2, and D3) and after 1-week retention interval (Ret) for each group. **J,K,L:** Block-by-block changes of the quartile variance coefficient of the Inter-Release Interval during the three practice days (D1, D2, and D3) and after 1-week retention interval (Ret) for each group.

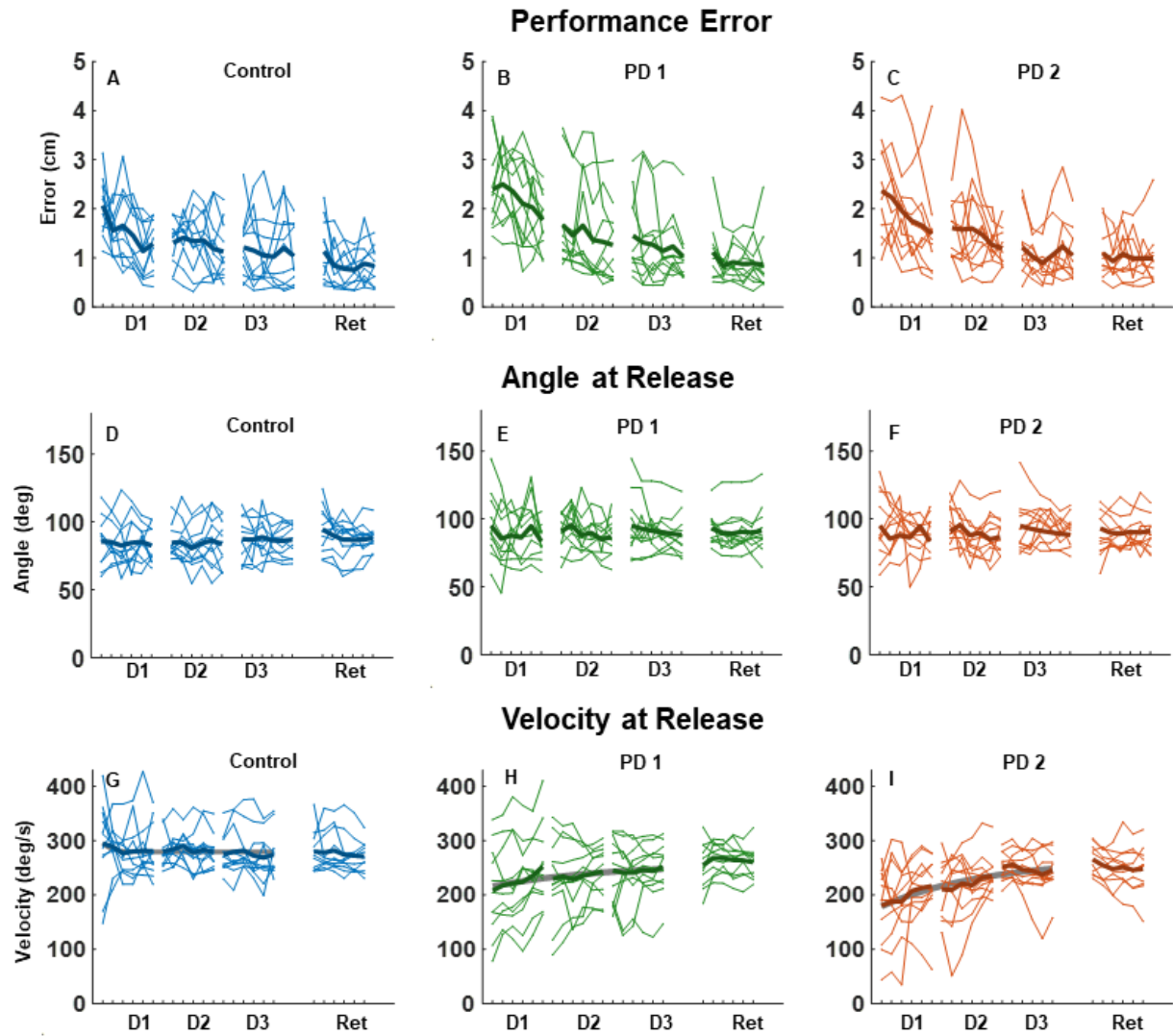


Figure S1. Changes of individual performance outcome and release angle and velocity over practice and retention.

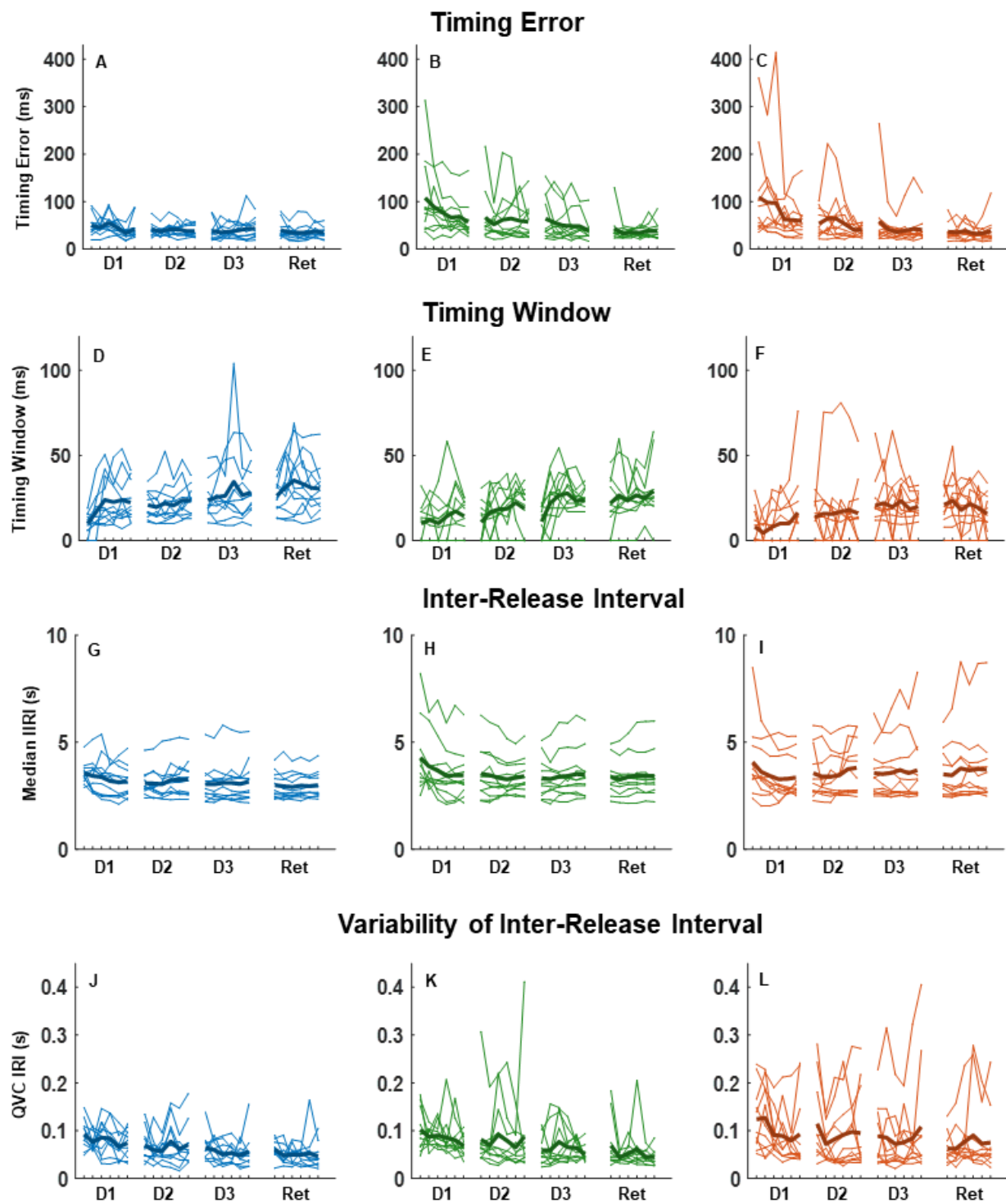


Figure S2. Changes of individual timing variables.