Supplementary information for "Effort-dependent effects of uniform and diverse muscle activity features in skilled pitching**".**

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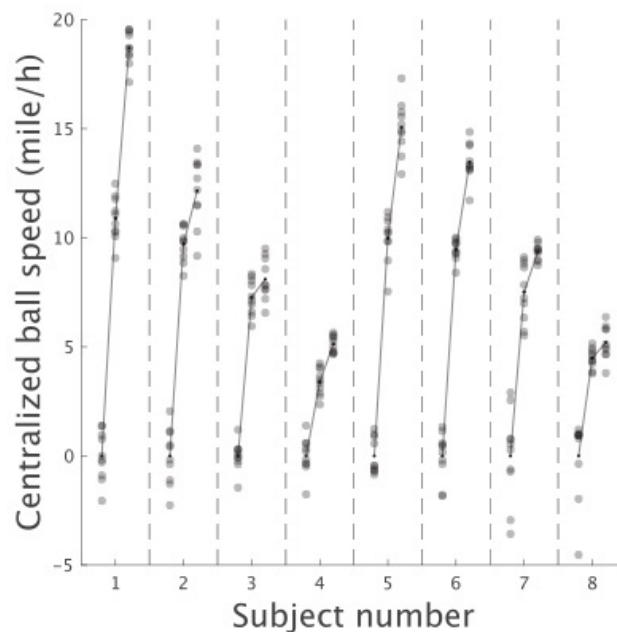*e-mail … t.j.ken.takiyama@gmail.com

Fig. S1: Ball-release speed in each subject and for each effort. Horizontal and vertical axes indicate the subject number and centralized ball-release speed, respectively. Because the average speed differs in each individual, we subtracted the average speed in 50%-effort trials from the ball-release speed for each subject. For each subject number, each dot indicates the centralized speed. The dots are plotted at three different horizontal locations for each subject. The horizontal locations indicate the trials with 50%, 80%, or 100% motion effort from left to right.
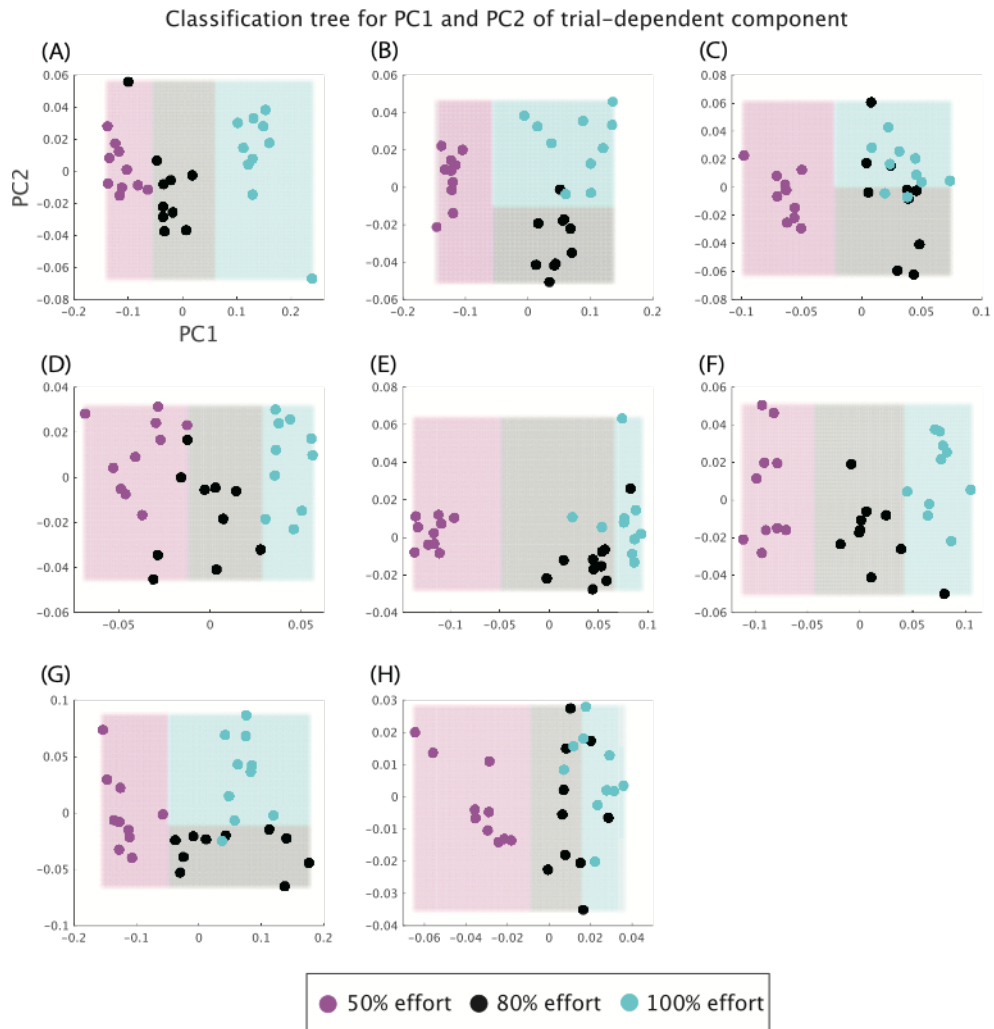
Fig. S2: PC1 and PC2 in the trial components, with the criteria explaining 70% of the variance of the original data. Magenta, black, and cyan dots demonstrate the PC1 and PC2 values in each trial with 50%, 80%, and 100% effort, respectively. Magenta, black, and cyan areas denote the data area classified as 50%, 80%, and 100% effort, estimated by a classification tree algorithm.

75% Criterion

Classification tree for PC1 and PC2 of trial–dependent component
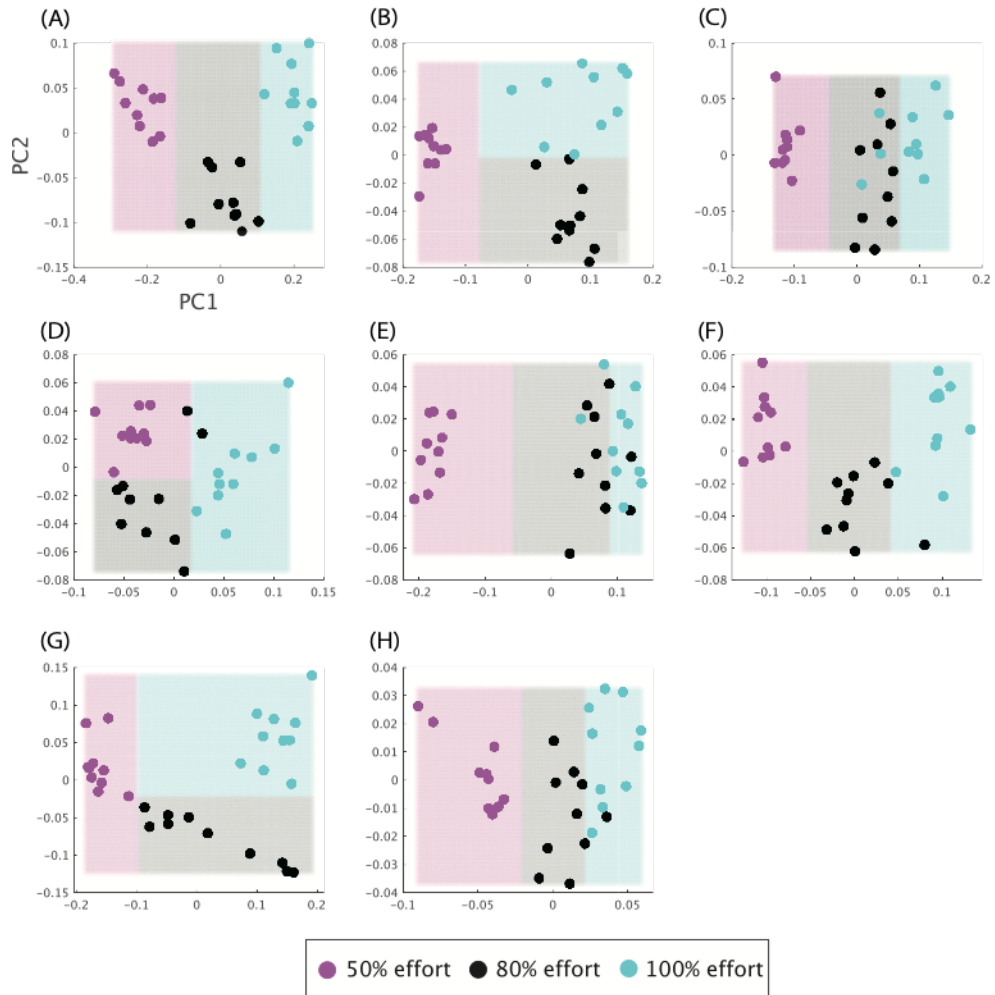

Fig. S3: PC1 and PC2 in the trial components, with the criteria explaining 75% of the variance of the original data.

80% Criterion

Classification tree for PC1 and PC2 of trial-dependent component
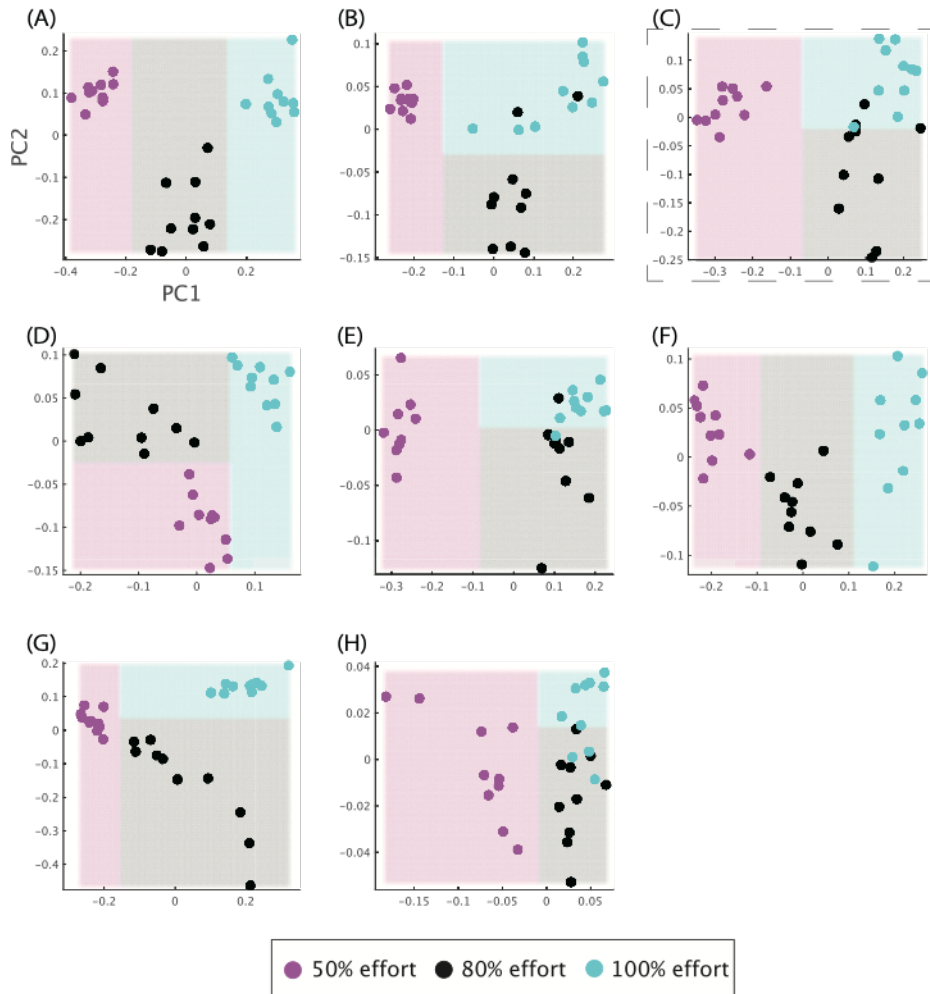

Fig. S4: PC1 and PC2 in the trial components, with the criteria explaining 80% of the variance of the original data. This figure is the same as Fig. 4 in the main text.

85% Criterion

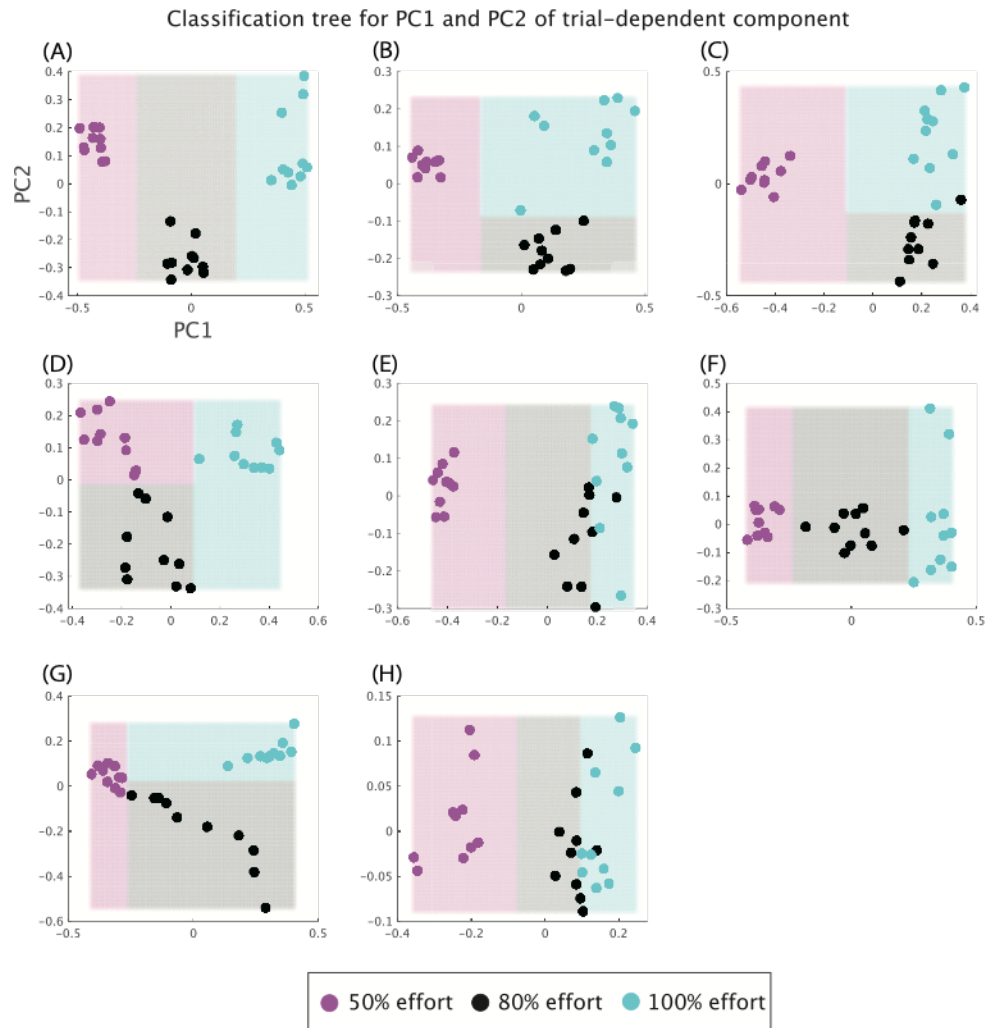## Classification tree for PC1 and PC2 of trial-dependent component

Fig. S5: PC1 and PC2 in the trial components, with the criteria explaining 85% of the variance of the original data.
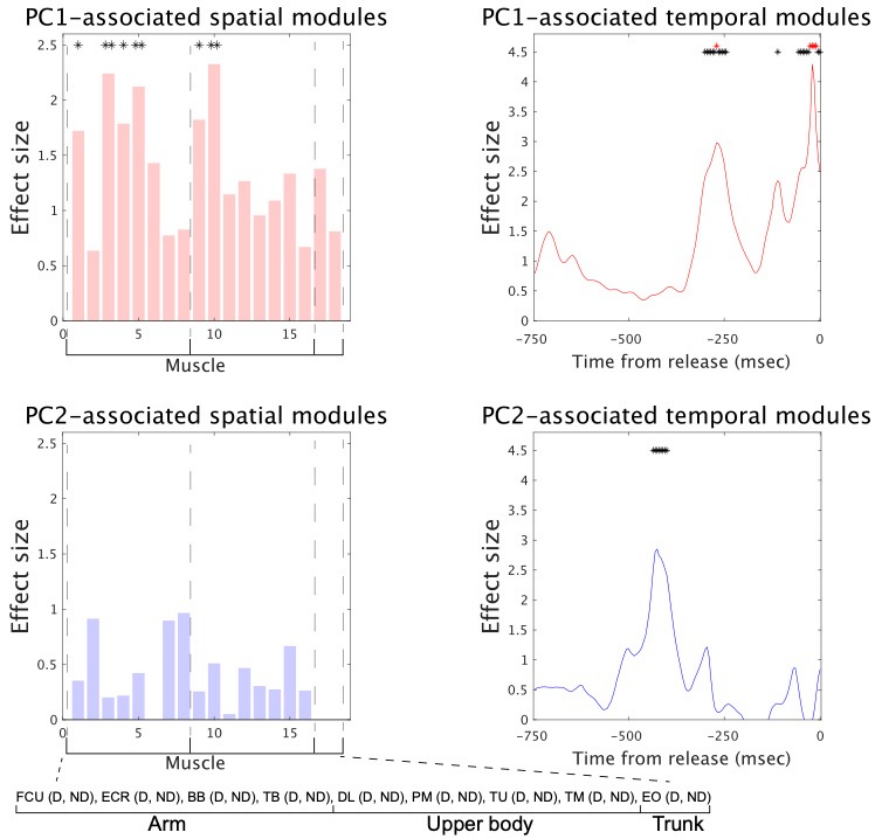
Fig. S6: Effect size of the data shown in Fig. 5. The effect size was calculated based on Cohen's d. Single black asterisks, single red asterisks, and double black asterisks correspond to the same asterisks in Fig. 5.