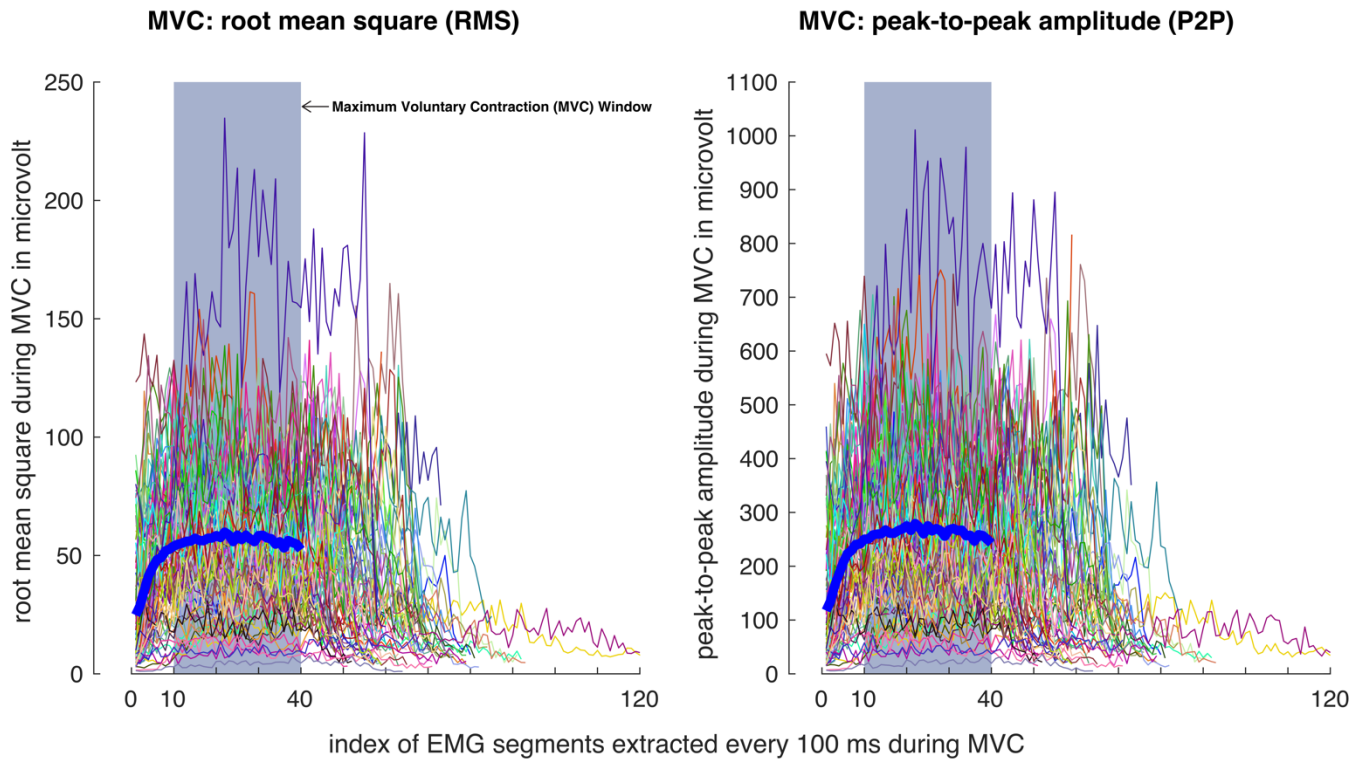
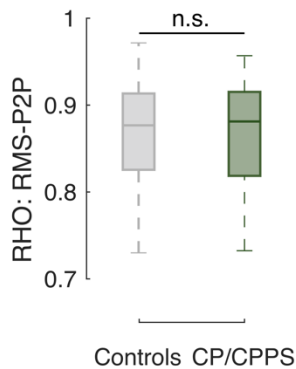


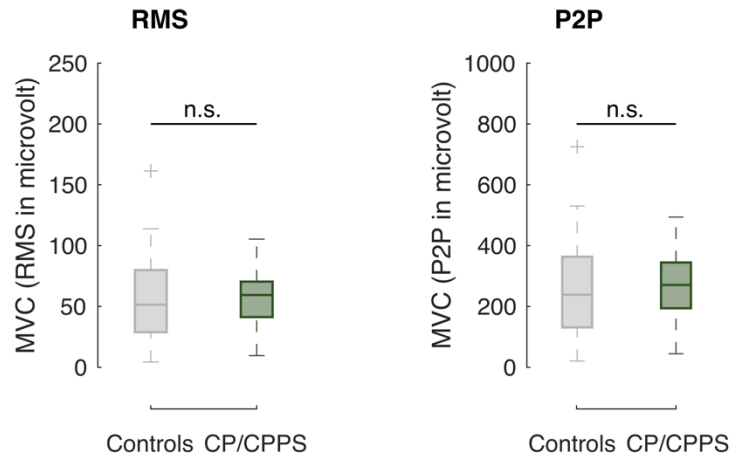
### A. MVC Traces in RMS and P2P



### B. RHO: MVC (RMS) - MVC (P2P)



### C. MVC (RMS and P2P) by cohort

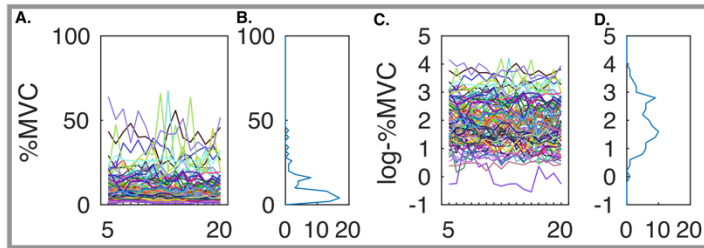


**Supplementary Figure 1. Electromyographic Maximum Voluntary Contraction (MVC).** Participants were instructed to contract their pelvic floor as hard as they could, hold, and relax. Non-overlapping 80-ms segments were extracted every 100 ms from the EMG signal and the root mean square value (RMS method, left panel) and peak-to-peak amplitude (P2P method, right panel) of each segment were estimated. We observed a similar ramping-up period followed by a hold period where the EMG data was stable; however, the length of the hold period was not the same across the participants (minimum-maximum range was 47-121 EMG segments). **A. MVC Traces.** Each panel shows 90 individual lines, one per participant. Each line is the trace of

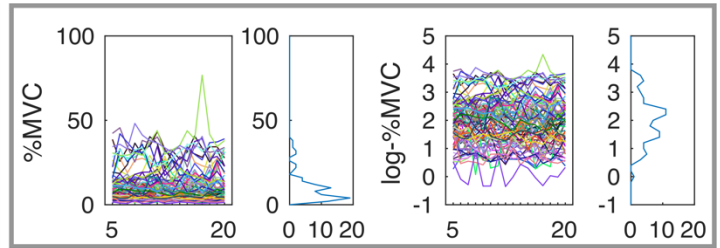
the EMG data points during MVC. The dark blue line represents the grand mean of the signal (1st and 47th segment). MVC was estimated as the mean (RMS or P2P in microvolt) between the 10th and 40th segment to allow pelvic floor muscle activity to rise to a maximum level and stabilize. **B. Correlating MVC calculated with the RMS and P2P methods.** We observed significant ( $p < 0.0001$ ) high within-participant pairwise correlation coefficients (RHO) between MVC when calculated using the RMS method and MVC when calculated using the P2P method, in each cohort. There was no cohort difference in mean RHO ( $p > 0.05$ ). **C. Comparing MVC in the men with CP/ CPPs and their controls.** We observed no cohort difference in mean MVC ( $p > 0.05$ ), regardless of the method used.

## Traces of PFM Resting Activity

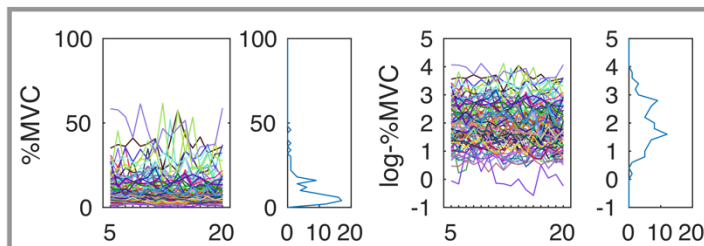
Condition 1 (C1): “rest-only”, RMS Method



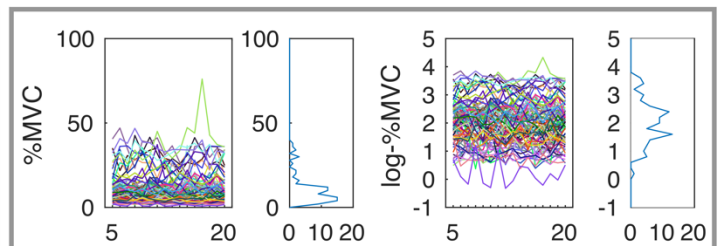
Condition 2 (C2): “rest-between-contraction”, RMS Method



Condition 1 (C1): “rest-only”, P2P Method

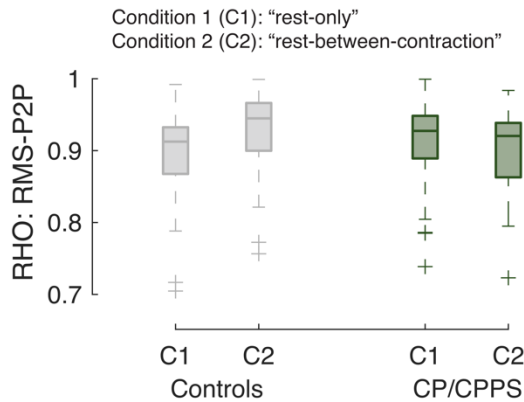


Condition 2 (C2): “rest-between-contraction”, P2P Method

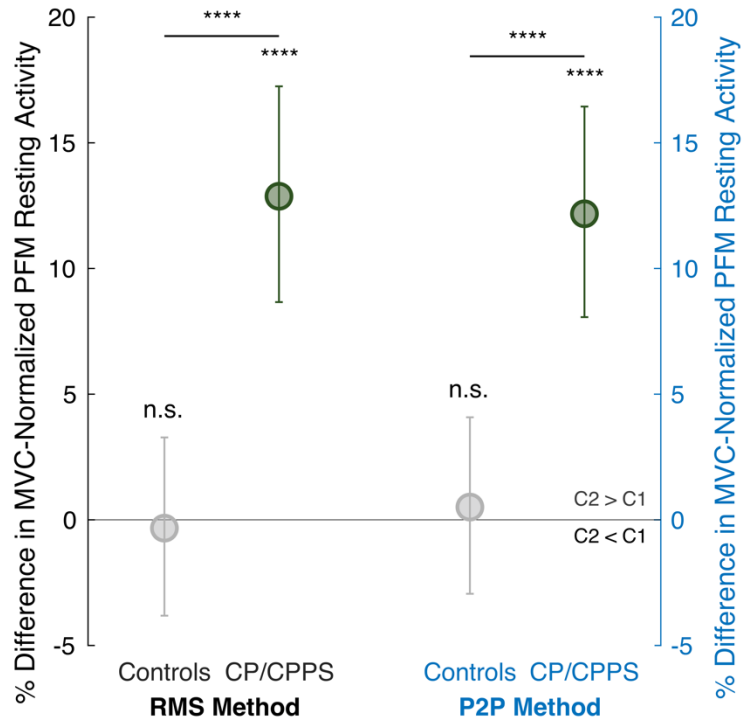


**Supplementary Figure 2. Traces of the EMG outcome.** Each of the 4 panels shows, from left to right: **A.** MVC-normalized EMG traces for the 90 participants (16 data points per participant), **B.** associated histogram of the means (mean data points in %MVC, between the 5th and 20th segment), **C.** log-transformed EMG traces for the 90 participants, and **D.** associated histogram of the means (mean data points in log-%MVC, between the 5th and 20th segment). **Top panels show EMG traces calculated with the RMS method,** during the two rest conditions (Condition 1 (C1): “Rest-only” and Condition 2 (C2): “Rest-between-contraction”). **Bottom panels show EMG traces calculated with the P2P method,** during the two rest conditions (Condition 1 (C1): “Rest-only” and Condition 2 (C2): “Rest-between-contraction”). Regardless of the method used or the rest condition, data was skewed and log-transformation was needed to correct skewness and influence of outliers.

### A. RHO: MVC-Normalized PFM Resting Activity



### B. Comparing the RMS Method to the P2P Method



**Supplementary Figure 3. Comparing cohort differences when the EMG outcome variable was assessed as the MVC-Normalized Root-Mean-Square (RMS) and as the MVC-Normalized Peak-to-Peak-Amplitude (P2P).** To test the validity of our RMS method's results we compared them to the P2P method's results. **A.** We observed significant ( $p < 0.0001$ ) high within-participant pairwise correlation coefficients (RHO) between the RMS outcome variable and P2P outcome variable under the same rest condition (Condition 1 (C1): "Rest-only" and Condition 2 (C2): "Rest-between-contraction") in both cohorts (CP/PPS, Controls). This finding predicted observing comparable cohort differences (i.e., the main result) when the two EMG processing methods were used. **B. Evidence of impaired ability to relax pelvic floor muscles in men with CP/PPS, regardless of the method used. Left (RMS method).** Percent difference in MVC-normalized PFM resting activity when comparing activity during Condition 2 to activity during Condition 1 (Percent Difference Estimate, 95% Confidence Interval, p-value): not significant in controls (-0.3314%, -3.8147% to +3.2780%,  $p = 0.8551$ ) and significant in men with CP/PPS (+12.8738%, +8.6624% to +17.2483%,  $p < 0.0001$ ). **Right (P2P method).** Similar results were observed. Percent difference in MVC-normalized PFM resting activity when comparing activity during Condition 2 to activity during Condition 1 (Percent Difference Estimate, 95% Confidence Interval, p-value): not significant in controls (+0.5069%, -2.9429% to +4.0793%,  $p = 0.7766$ ) and significant in men with CP/PPS (+12.1761%, +8.0649% to +16.4437%,  $p < 0.0001$ ). \*\*\*\* ( $p < 0.0001$ ), n.s. = not significant.