

## Supplemental Material

### Investigation of Acoustic Signals for Gait Analysis, Buxton et. al

The following figures present data from an additional ten participants, corresponding to Figures 4 and 5 in the main manuscript. Those figure captions are repeated here:

#### Figure S1. COF Trajectory Participants F-J, Figure S2. COF Trajectory, Participants K-O

Left foot COF trajectory. Column 1: pre-fatigue; Column 2: post-fatigue. Force is indicated by the color scale as a ratio to body weight (BW). Each plot is approximately 70 - 80 stances (individual steps). The color scale is the same for pre/post fatigue comparison in a subject, but the color maximum (bright yellow) is set to match the peak force observed in an individual. A black dot on each plot indicates the position where the largest force was recorded.

#### Figure S3. Acoustic Envelopes Participants F-J, Figure S4. Acoustic Envelopes, Participants K-O

Ensemble-averaged acoustic envelopes. For both pre- and post-fatigue, the green/red (left/right) stance markers are corrected for latency, assuming the sound level rises when the foot strikes. The figures are characterized by a small and big-peak (sp, bp), a consistent bp right-side decline, and an increase in amplitude with fatigue.

**Table S1. Data used to generate figures 6, 7 and Table 1 in the main text**

Data Table for Figures 6,7 and Table 1. Pre and Post column labels refer to pre and post fatigue.  
See the text for full definitions of variables.

Participant	Participant weight (kg)	Maximum Acoustic Amplitude $AA_{max}$ (A.U.)		Maximum Contact Pressure $CP_{max}$ (kPa)		Maximum Force $F_{max}$ (Newtons)	
		Pre	Post	Pre	Post	Pre	Post
A	80.9	0.119	0.156	84	100	1542	1670
B	56.8	0.119	0.152	108	116	1219	1429
C	55.9	0.118	0.137	53	79	927	1021
D	72.7	0.130	0.156	82	99	1495	1670
E	63.6	0.097	0.137	85	114	919	1207
F	59.5	0.150	0.145	68	75	1018	1194
G	63.2	0.122	0.143	83	113	955	1092
H	71.4	0.127	0.139	127	111	1472	1327
I	65.0	0.119	0.134	98	60	1171	789
J	70.0	0.119	0.137	81	105	1206	1284
K	89.1	0.118	0.137	81	100	1338	1687
L	55.9	0.129	0.144	131	146	1278	1422
M	80.0	0.135	0.156	139	188	2002	1755
N	50.0	0.135	0.165	97	128	966	1010
O	41.7	0.137	0.149	118	117	763	942

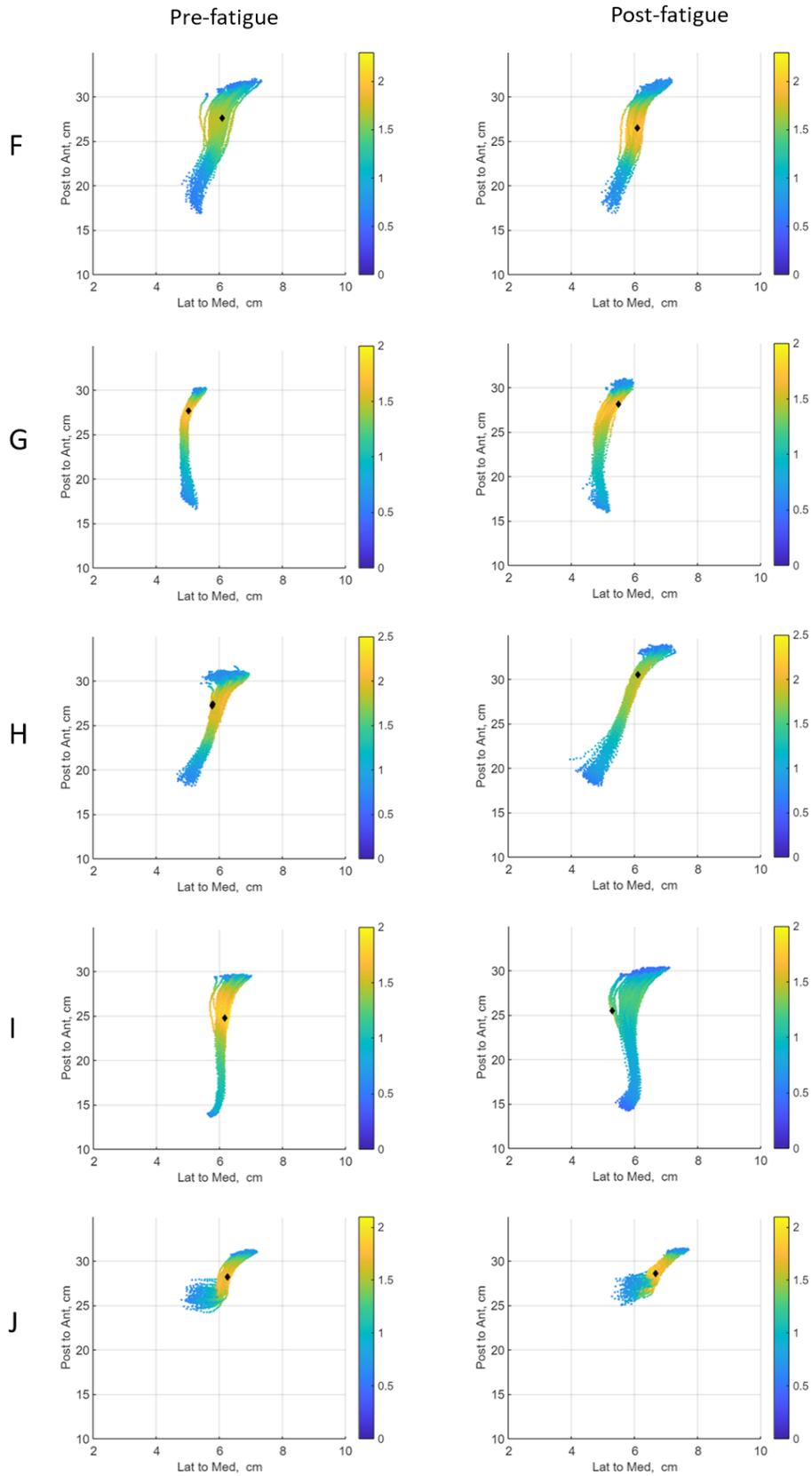


Figure S1. (see caption above)

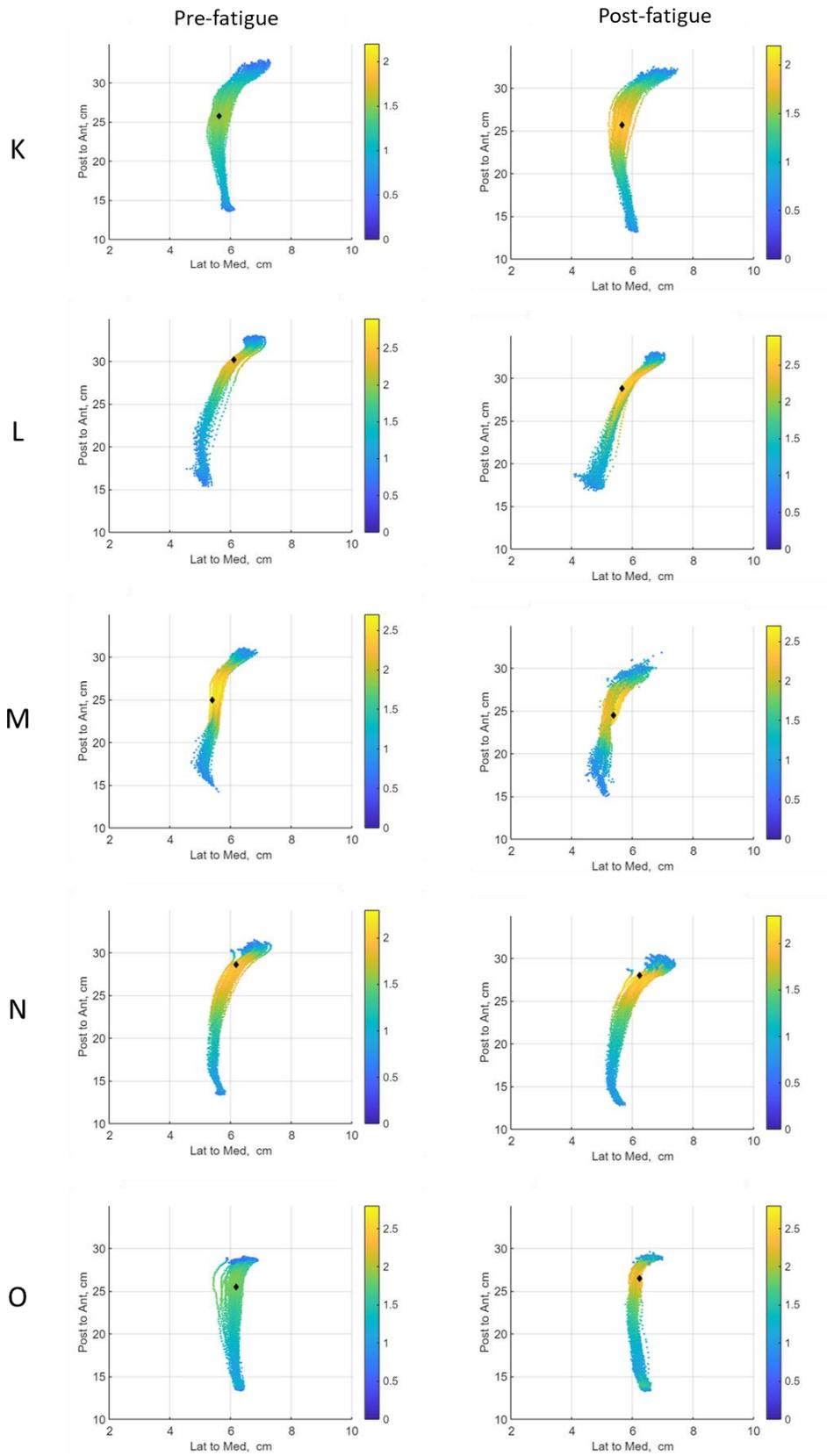


Figure S2. (see caption above)

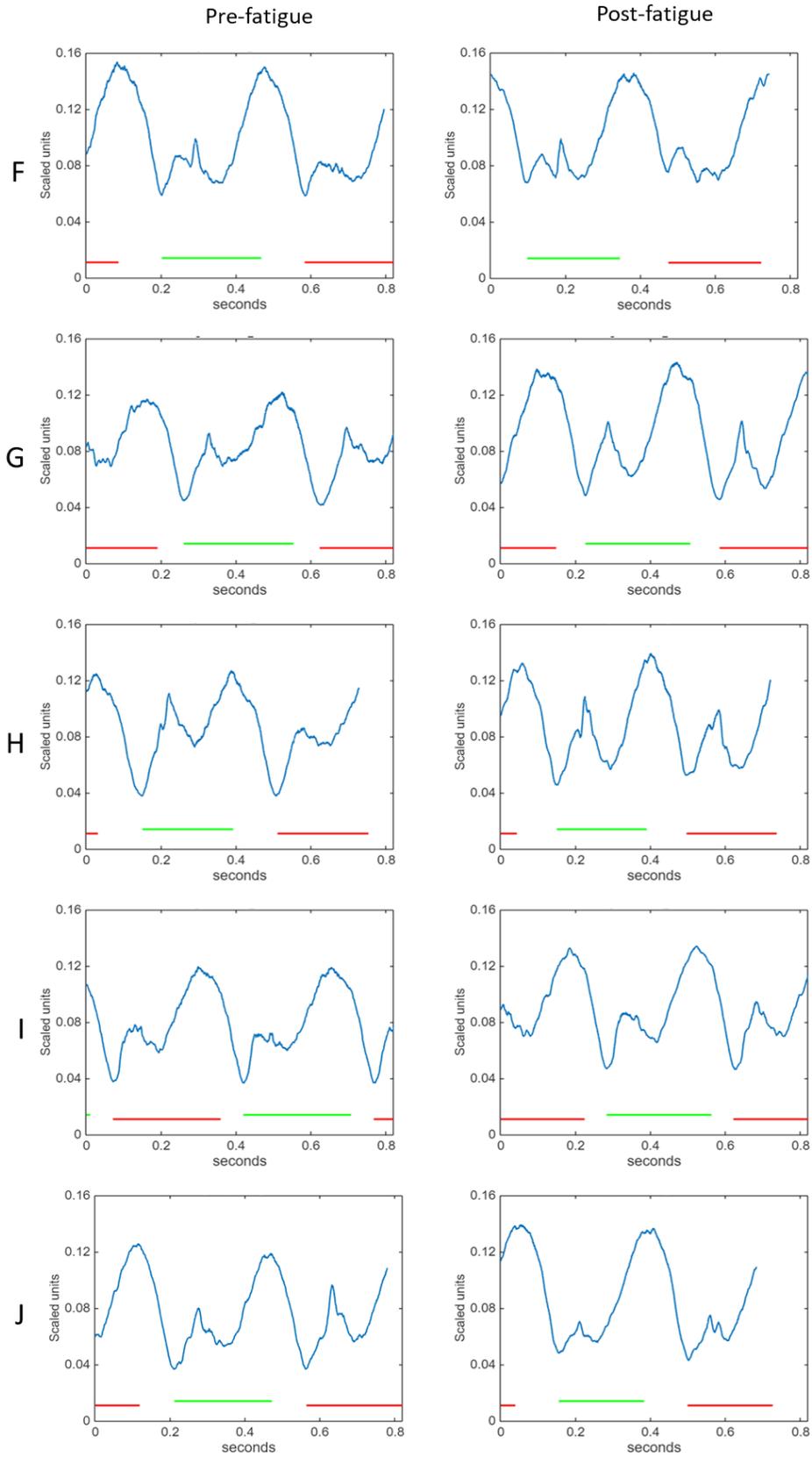


Figure S3. (See caption above)

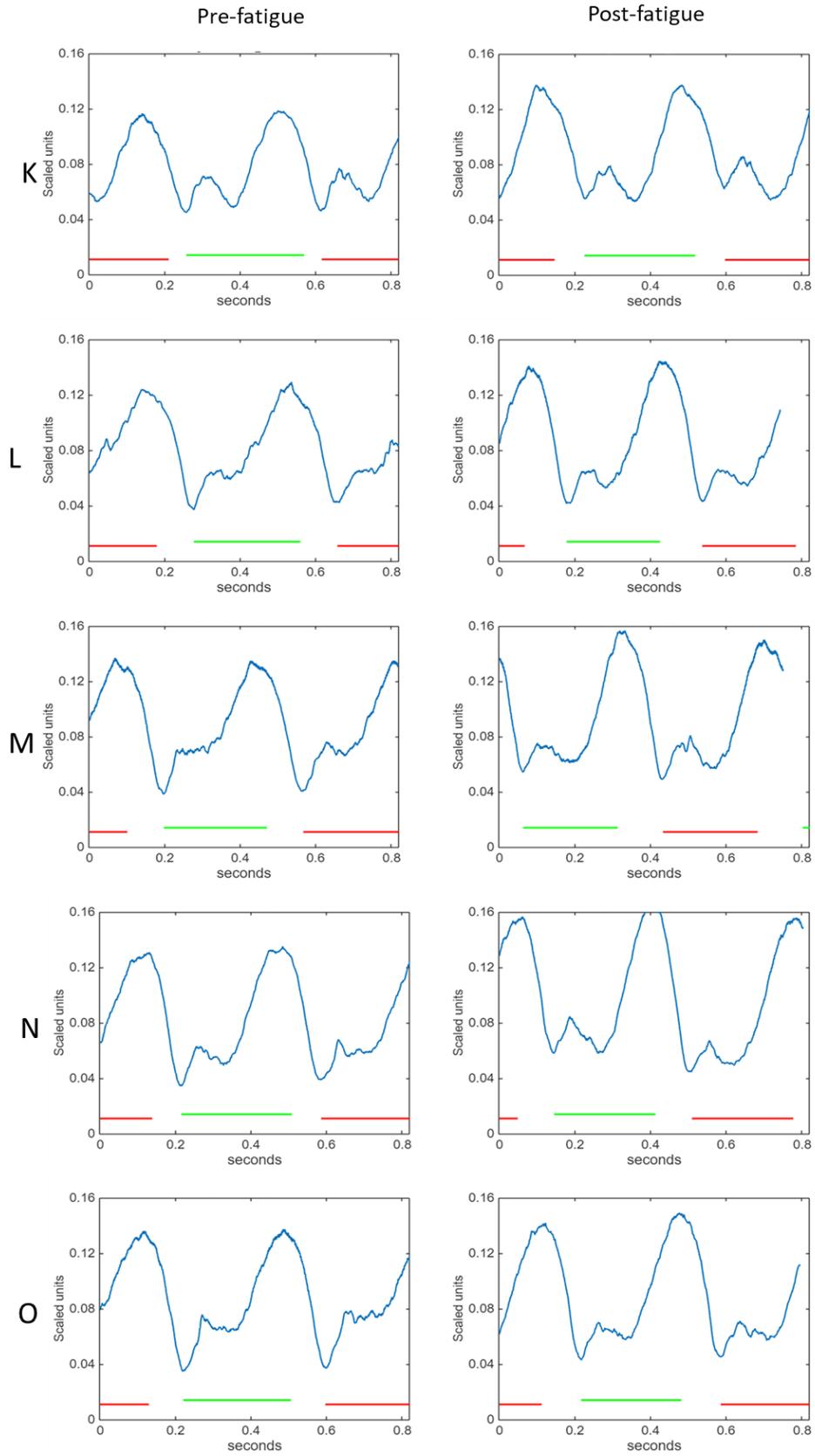


Figure S4. (See caption above)