Supplementary Materials

Cognitive benefits of using non-invasive compared to implantable neural feedback

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Tables

	Sum of Squared Residuals (SSE)	R-squared	Root Mean Square Error (RMSE)
NI1	0.139	0.9223	0.1243
NI2	0.8546	0.8384	0.135

Table S1. JNDs Goodness of Fit for NI subjects

	Stimulation Channel	Pulse-width (µs)					Amplitude (mA)
		L1	**L2**	**L3**	**L4**		
NI 1	Ch 1	136	198	278	391		7
	Ch 2	140	196	278	390		7
	Ch 3	134	190	267	374		11
	Ch 4	134	191	278	390		10

Table S2. Stimulation Pulse-Widths and Amplitudes for Subject NI1.
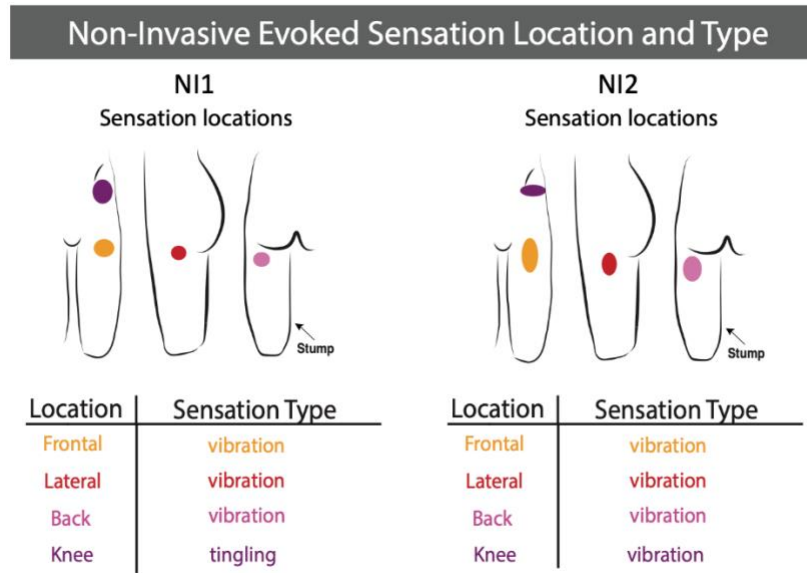
Figures

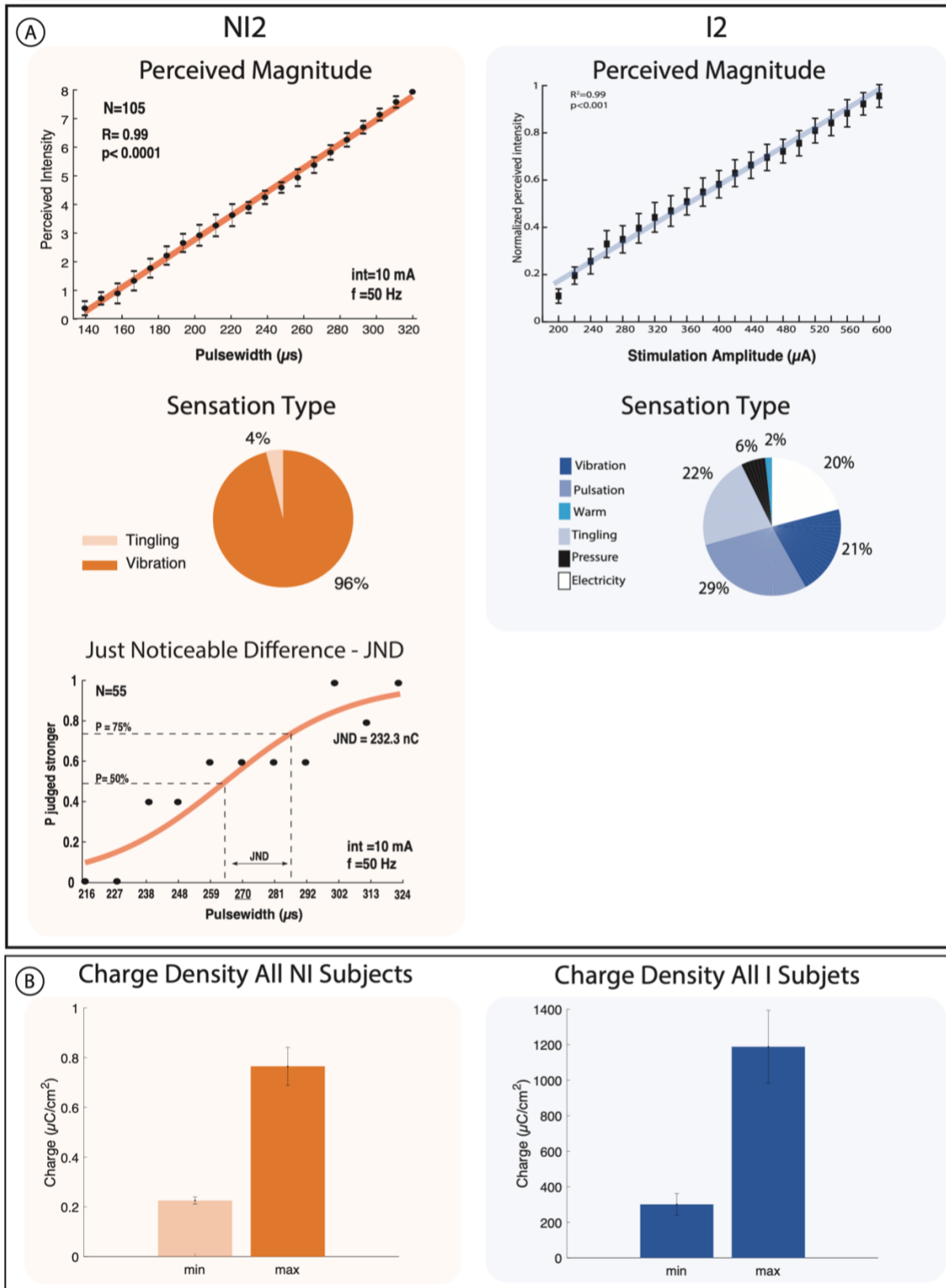Figure S1 Non-Invasive Sensation Characterization. Perceived sensation locations and types in NI subjects.

Figure S2 Electrically-Evoked Sensation Characterization Extended results. (A) Electrical charge sensitivity, perceived intensity of charge, and sensation type for NI2 and I2. (B) Charge Density in all NI and I subjects.
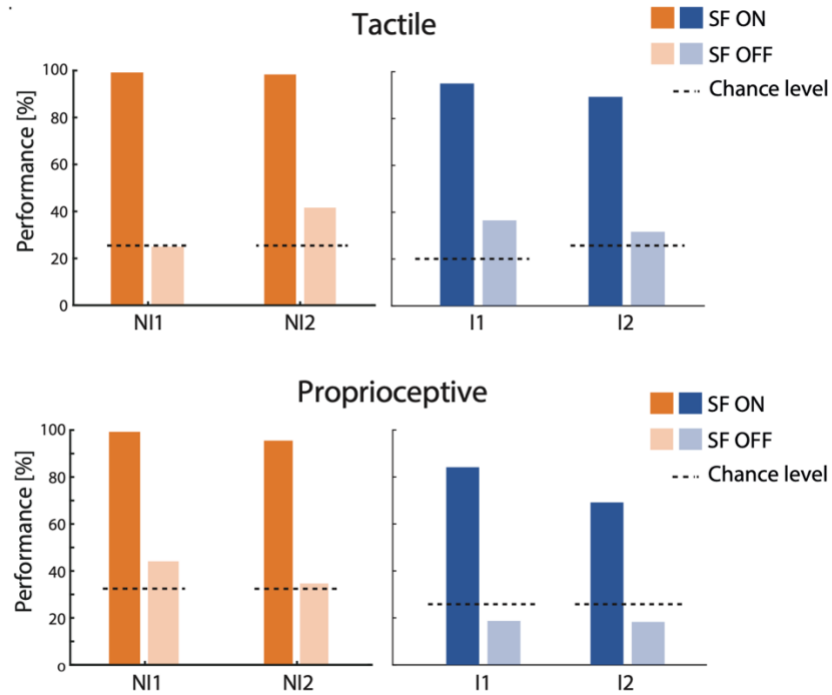
Figure S3. Passive Task Control Conditions. Correct passive identification of touched location or flexion level for Non-invasive subjects NI1, NI2 and invasive subjects I1, I2.
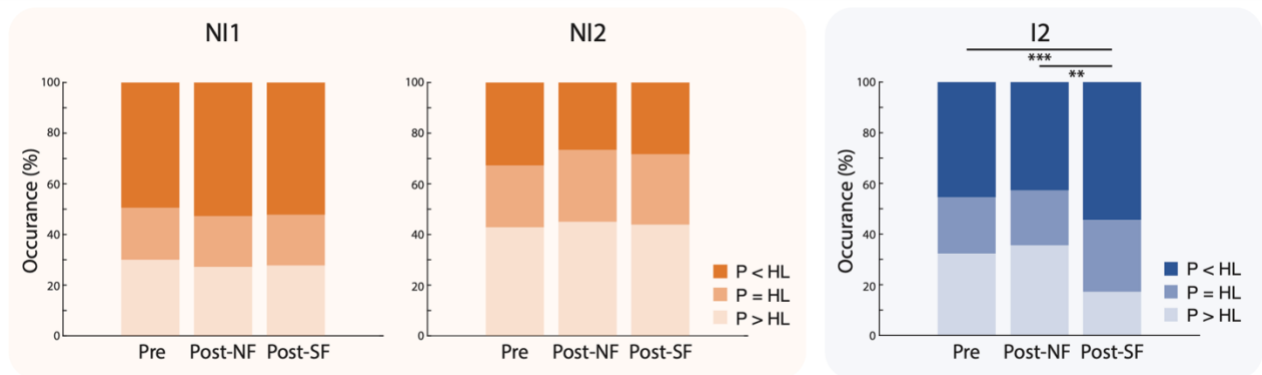

Figure S4. Prosthesis Weight Perception Relative to Healthy Leg. Occurrence of response to the question "Which leg is heavier". P = prosthetic, HL = healthy leg. Statistical significance is marked with *$p<0.05$, **$p<0.01$, ***$p<0.001$.
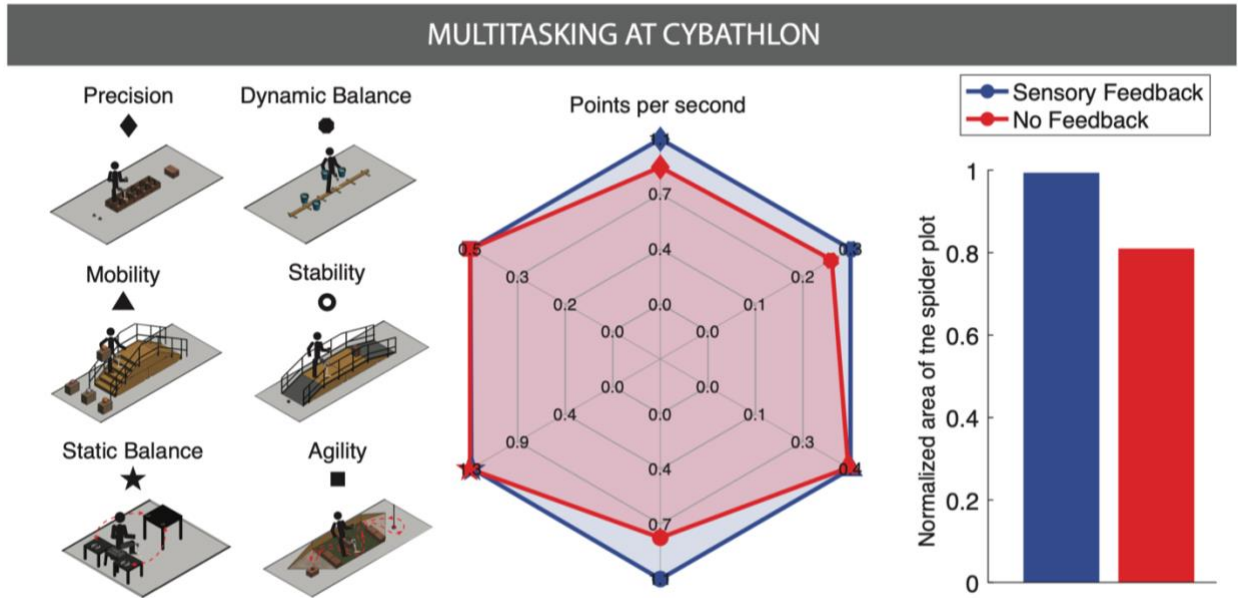
Figure S5. Daily Life Task Performance at Cybathlon. Points per second achieved in each of the daily life tasks at Cybathlon are plotted in a spider plot and compared with and without sensory feedback for NI1
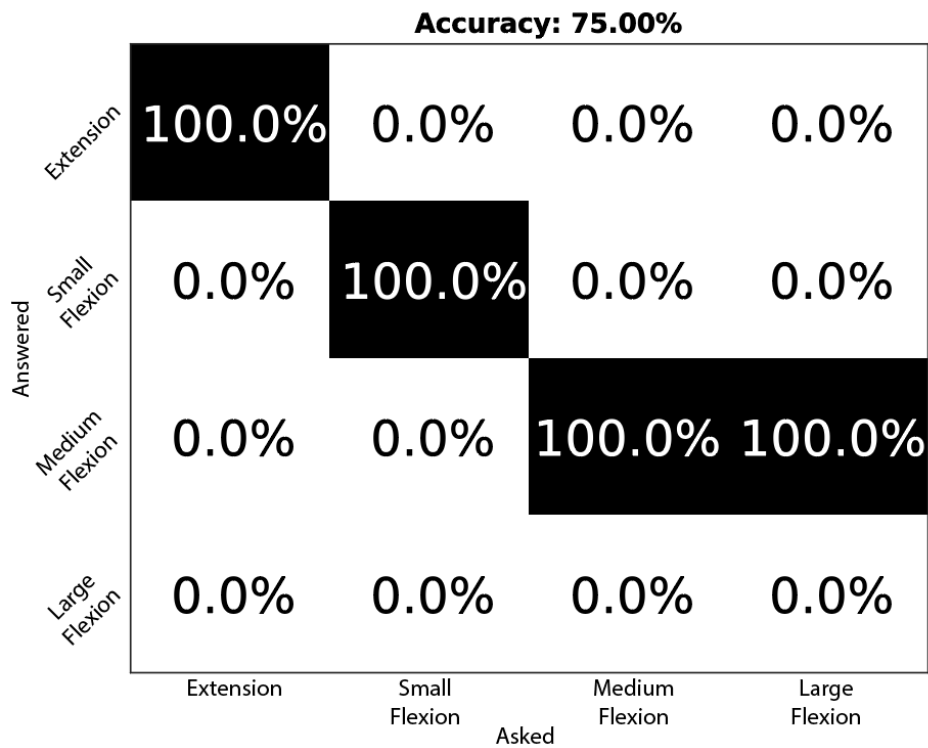

Figure S6. NI1 flexion level task performance with 4 levels. Corresponding levels of charge injected can be found in Table S2 in the CH 1 row.