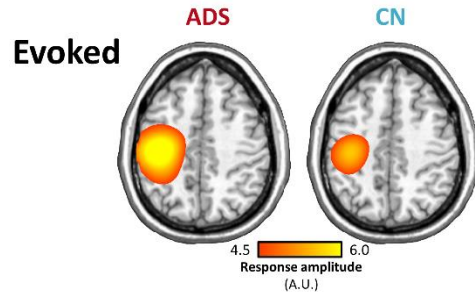


**Figure S1. Somatosensory responses in the theta, alpha, and beta bands.** The spectrograms (bottom) display time-frequency data from representative gradiometers (left: MEG0233; right: MEG1812), with time represented (in milliseconds) on the x-axes and frequency represented (in Hz) on the y-axes. The vertical dotted lines represent the onset of the two somatosensory stimulations (at 0 and 500 ms), and the time-frequency responses identified in the sensor-level analysis are indicated by greek letters. Brain images (top) indicate the source-imaged data, averaged over both somatosensory responses and within each group (ADS: Alzheimer's disease spectrum, red; CN: cognitively-normal, blue), with the amplitude thresholds (in pseudo-t values) used for display shown on the respective color bars.



**Figure S2. Somatosensory evoked responses in the time domain.** Brain images indicate the source-imaged evoked somatosensory response, averaged over both stimulations within each group (ADS: Alzheimer's disease spectrum [left]; CN: cognitively-normal [right]), with the amplitude thresholds (in arbitrary units, A.U.) used for display shown on the color bar below.

**Table S1. Model summary statistics for each somatosensory response.**

Response Amplitude	Peak Location (x, y, z)			ADS vs CN (t-value)	Attention Effect ( $\Delta R^2$ )	Attention ACME	Processing Speed Effect ( $\Delta R^2$ )	Processing Speed ACME
Theta (4 – 8 Hz)	-38	-27	49	-1.16	.016	-	.013	-
Alpha (8 – 12 Hz)	-43	-26	44	-0.20	.061 <sup>#</sup>	-	.081*	-
Beta (16 – 24 Hz)	-38	-23	53	-0.44	.008	-	.029	-
Gamma (30 – 80 Hz)	-42	-23	53	2.40*	.027	-	.155**	-.072**
Evoked	-38	-23	48	1.83 <sup>#</sup>	.004	-	.003	-
Somatosensory Gating	Peak Location (x, y, z)			ADS vs CN (t-value)	Attention Effect ( $\Delta R^2$ )	Attention ACME	Processing Speed Effect ( $\Delta R^2$ )	Processing Speed ACME
Theta (4 – 8 Hz)	-38	-27	49	-1.50	.007	-	.029	-
Alpha (8 – 12 Hz)	-43	-26	44	-2.18*	.052 <sup>#</sup>	-	.032	-
Beta (16 – 24 Hz)	-38	-23	53	0.30	.024	-	.017	-
Gamma (30 – 80 Hz)	-42	-23	53	-1.99 <sup>#</sup>	.099*	.008*	.101*	.007*
Evoked	-38	-23	48	-1.89 <sup>#</sup>	.014	-	.002	-

<sup>#</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .005$ . ACME: average causal mediation effect. Peak voxel coordinates are defined in MNI space.