

**Supplementary Table 1 (ST1).** PA metrics (ENMO, MAD, PSMS) vs. Sleep quality metrics (SE, WASO, Sleep score, SRI, NPI-NH (Section K); Spearman correlations (effect size) with respective p-value.

PA metrics vs. Sleep Quality Spearman Correlation (p-value)	SE	WASO	Sleep score	SRI	ENMO	MAD
Physical activity ENMO	*0.43 (0.05)	*-0.37 (0.02)	0.21 (0.22)	0.18 (0.32)	-	-
Physical activity MAD	-0.01 (0.95)	0.27 (0.87)	-0.23 (0.18)	*0.46 (0.0072)	-	-
PSMS	-	-	-	-	-0.11 (0.76)	0.09 (0.80)
NPI-NH (K)	-0.34 (0.34)	*0.65 (0.04)	-0.37 (0.29)	-0.09 (0.82)	-	-

\*p-value < 0.05. **Abbreviations:** ENMO; Euclidean Norm Minus One, PA; Physical Activity, MAD; Mean Amplitude Deviation, NPI-NH (Section K); Neuropsychiatric Inventory (nighttime behaviors), PSMS; Personal Self-Maintenance Scale, SE; Sleep Efficiency, SRI; Sleep Regulatory Index, WASO; Wake After Sleep Onset.