

Figure S1. Sleep stage identification by data collection method.

Device/Method	Sleep				Wake
	N1	N2	N3	REM	
PSG	• N1	• N2	• N3	• REM	• Wake
S+	←————→ Light Sleep		• Deep Sleep	• REM	• Wake
Actigraphy	←————→ Sleep				• Wake

Figure S1. Outline of each state and stage that is identified by a given recording device or method. Arrows spanning more than one sleep stage indicate that a device does not distinguish between those stages. PSG: Polysomnography, N1: Non-REM Sleep Stage 1, N2: Non-REM Sleep Stage 2, N3: Non-REM Sleep Stage 3, REM: Rapid Eye Movement Sleep.

Figure S2. Consort diagram

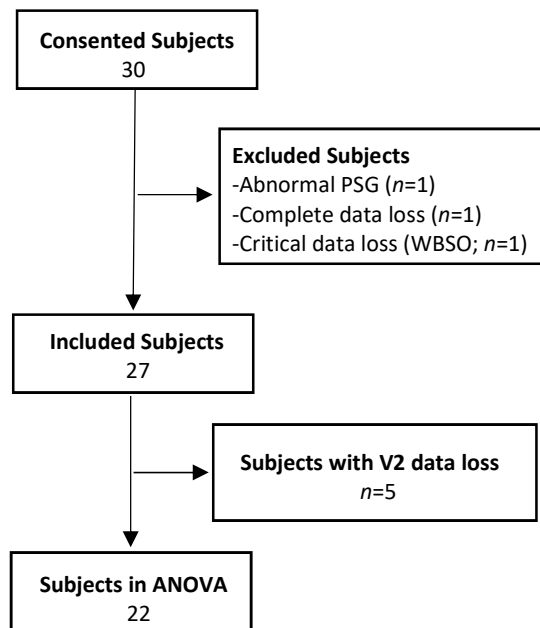


Figure S2. Outline of data included in analyses. PSG: Polysomnography, WBSO: Wake Before Sleep Onset, V2: S+ Algorithm Version 2.

Figure S3A.

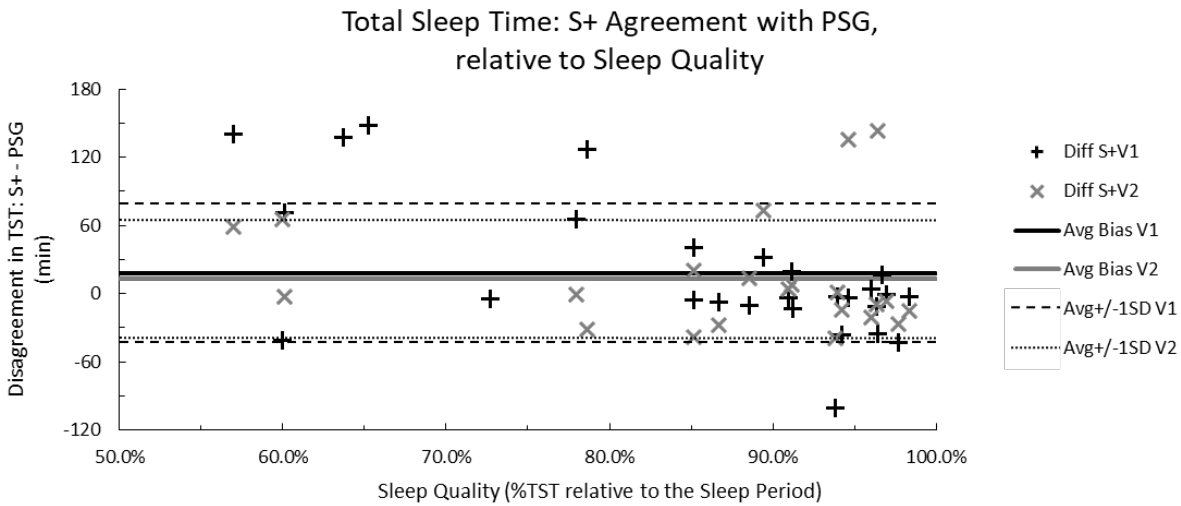


Figure S3B.

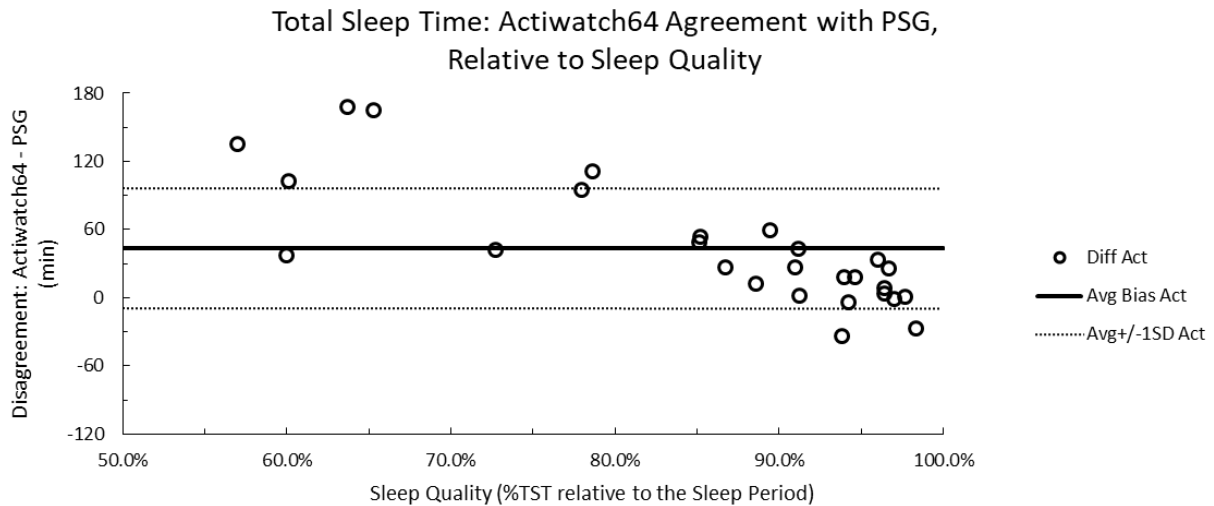


Figure S3A-B. Bland-Altman concordance between the S+ device (plot A) or Actigraphy (plot B) and PSG when detecting total sleep time, relative to Sleep Quality. Solid lines indicate average discrepancy, dashed and dotted lines indicate  $\pm 1$  standard deviation, and symbols correspond to the number of minutes (min) differing for each participant. On the ordinate, a positive difference indicates overestimation and a negative difference underestimation relative to

PSG. The range of participant total sleep time as a percentage of the sleep period (Sleep Quality), according to RPSGT-scored PSG, is on the abscissa. PSG: Polysomnography, Diff: Difference, Avg: Mean, V1: Algorithm Version 1, V2: Algorithm Version 2, SD: Standard Deviation, Act: Actigraphy, TST: Total Sleep Time.