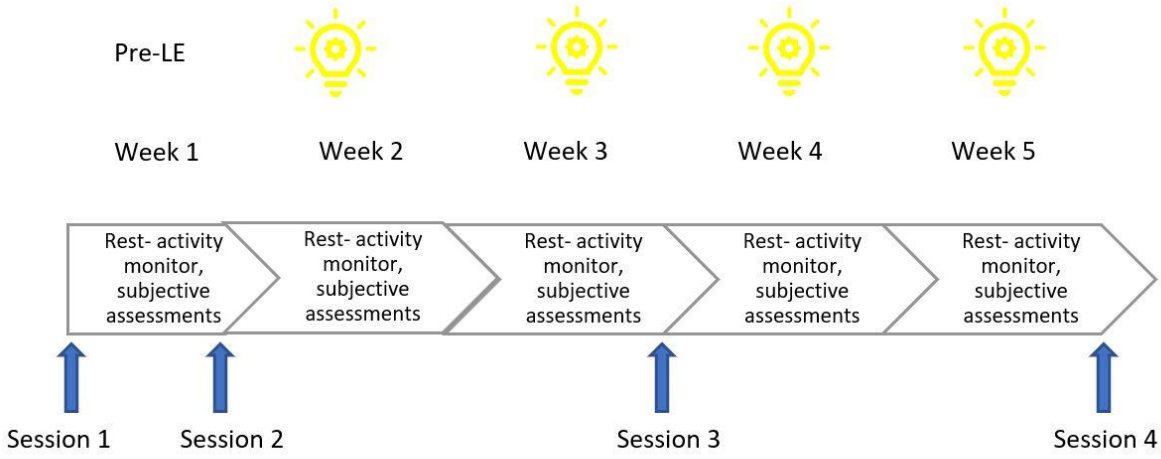
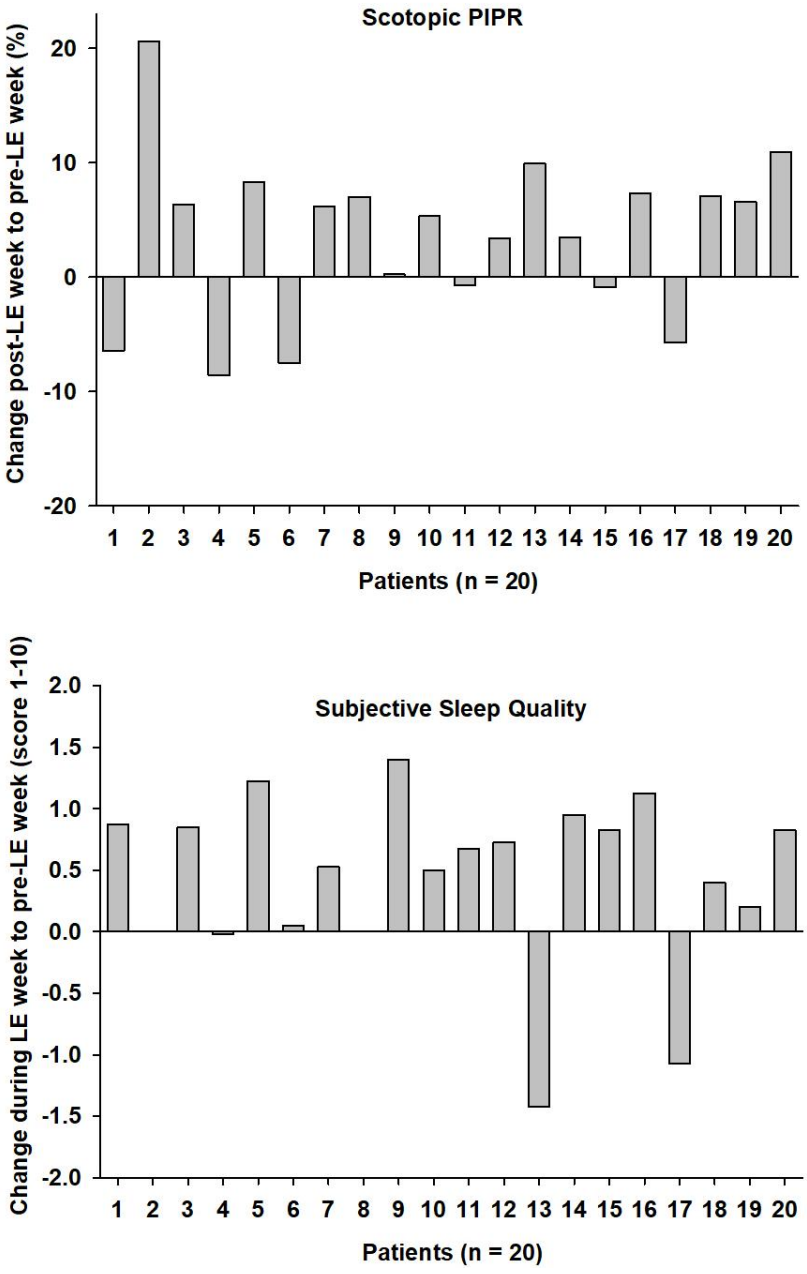
Supplementary Figure 1



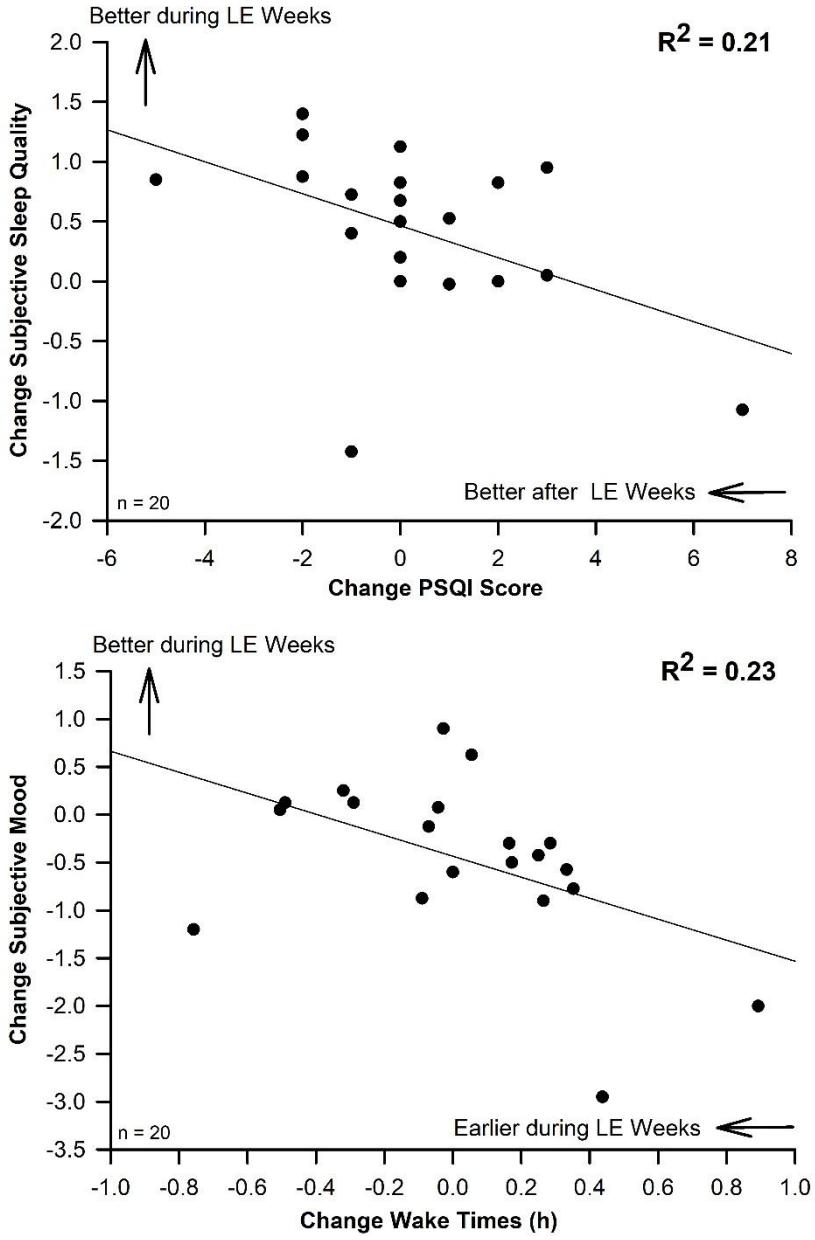
Supplementary Figure 1: Schematic study overview with the 4 sessions, where participants came to the laboratory. The pre-light exposure (LE) week and 4 LE weeks were spent at home, under normal daily routines while continuously recording rest-activity cycles and daily completion of self-assessments for sleep quality, mood, alertness, wellbeing and visual comfort. Pupillometry was performed during session 2 and 4. The yellow bulbs indicate the LE weeks with scheduled daily bright LE for 30 min.

Supplementary Figure 2



Supplementary Figure 2: The upper graph shows individual differences of the scotopic PIPR at higher luminance (170 cd/m^2; upper graph) between the pre-LE and post-LE (LE= light exposure). The lower graph shows individual differences in subjective sleep quality between the pre-LE (average of week 1) and LE weeks (average between weeks 2-5). The subjective sleep quality scores derived from the daily completed visual analogue scales for sleep quality ranging between 1 = very bad sleep and 10 = excellent sleep. The differences on both graphs are shown for each participant (1-20). Positive values indicate greater scotopic PIPR and greater subjective sleep quality (n = 20).

Supplementary Figure 3



Supplementary Figure 3

Upper graph: Scatterplots (and regression lines) with correlation analysis for changes of the PISQI and subjective sleep quality ($p = 0.04$; $R^2 = 0.21$) during LE weeks compared to pre-LE. Lower graph: correlation between changes of habitual wake time and subjective mood (from VAS) during LE weeks compared to pre-LE ($p = 0.03$; $R^2 = 0.23$; Pearson's correlation; $n = 20$). The direction of effects is indicated with arrows in the respective corner of the upper and lower graph; $n = 20$.

Supplementary Table 1

	Mean (SD)
Age (years)	67.55 (7.45)
Sex (Female/Male)	9/11
VA RE	0.80 (0.19)
VA LE	0.89 (0.22)
Mean VA (both eyes)	0.85 (0.17)
Octopus MD RE (dB)	5.58 (4.77)
Octopus MD LE (dB)	5.24 (3.85)
Mean Octopus MD (both eyes)	5.41 (3.17)
OCT RNFL RE (A; B; N)	17A; 2B #
OCT RNLF LE (A; B; N)	18A; 1N #

Demographics and eye examination results, shown as mean values ± Standard Derivations (SD; in brackets; n = 20). RE = right eye; LE = left eye; VA = visual acuity; MD = mean deviation; OCT = optical coherence tomography; RNFL = thickness of retinal nerve fiber layer; A = OCT RNFL abnormal; B = OCT RNFL borderline; N = OCT RNFL normal; #: n=19 (one patient's data missing).

Supplementary Table 2

	Mean (SD; range)
MCTQ (MSF-Sc)	3.0 (1.1; 1.25 - 5.29)
ESS	5.8 (4.4; 0 - 19)
HO	64.0 (9.0; 45 - 82)
SPAQ	5.2 (5.5; 0 - 16)
BDI	3.1 (3.0; 0 - 10)
PSQI[a, b]	5.5 (3.4; 1 - 12) / 5.7 (4.1;1 - 14)

Results from screening questionnaires are shown as mean (± SD; range, in brackets) values for: the Munich Chronotype Questionnaire (MCTQ; MSF-Sc = midsleep on free days, sleep duration corrected); Epworth sleepiness scale (ESS); Horne Ostberg (HO); Seasonal Pattern Assessment Questionnaire SPAQ); Becks Depression Inventory (BDI); Pittsburgh Sleep Quality Index (PSQI); [a] = mean PSQI post-light light exposure; [b] = not significant ($p > 0.67$); n = 20.

Supplementary Table 3

irradiance, mW/m^2	illuminance, lx	log photon irradiance, $log10/s/cm^2$
10357.53	3547.97	15.462

	S-cone-opic	M-cone-opic	L-cone-opic	Rhodopic	Melanopic
α-opic irradiance, mW/m^2	1943.86	4591.69	5673.87	3410.49	2709.43
α-opic equivalent daylight (D65) illuminance (α-opic EDI), lx	2378.42	3154.01	3483.24	2352.54	2042.98
α-opic log photon irradiance, $log/s/cm^2$	14.641	15.097	15.209	14.938	14.824

Measurements of the light source (EnergyUp l/ HF3419™ Philips, The Netherlands) taken in 50 cm distance at the vertical eye level of a user with a spectroradiometer (Specbos 1201, Jeti, Jena, Germany). The alpha-opic (α-opic) units are based on the standard of the Commission International de l' Éclairage (CIE S 026) and calculated by using the Toolbox beta version E1.051 – 20190319.

Supplementary Table 4

	Pre-LE				Post-LE			
Baseline Pupil Sizes	**Right Eyes**		**Left Eyes**		**Right Eyes**		**Left Eyes**	
Photopic (low)	3.50	(0.73)	3.47	(0.66)	3.59	(0.71)	3.49	(0.66)
Photopic (high)	3.41	(0.73)	3.52	(0.61)	3.51	(0.72)	3.58	(0.63)
Scotopic (low)	5.07	(0.76)	4.97	(0.82)	**5.14***	**(0.77)**	**4.86**	**(0.86)**
Scotopic (high)	4.61	(0.73)	4.48	(0.64)	**4.64***	**(0.64)**	**4.39**	**(0.72)**

Baseline (BL) pupil sizes [mm; mean (SD, in brackets)] obtained before photopic and scotopic light pupil test stimuli at two different luminance levels: 56 cd/m^2 (indicated as low) and 170 cd/m^2 (indicated as high), for pre-LE week (LE = light exposure; i.e. before the 4 weeks with daily scheduled bright light exposure) and post-LE (i.e. after 4 weeks of daily scheduled bright light exposure). * = $p < 0.05$; with smaller baseline pupil sizes for left than right eyes (significant results are shown in bold); n = 20.

Supplementary Table 5

	PRE-LE week	LE week 5
Bedtime	23.59 (1.19)	23.61 (1.30)
Sleep Onset	23.79 (0.26)	23.88 (0.29)
Wake Time	7.24 (0.22)	7.28 (025)
Get up Time	7.33 (0.99)	7.35 (1.14)
Time in Bed	7.72 (0.74)	7.73 (0.94)
Sleep Duration	7.44 (0.73)	7.38 (0.91)
Wake Duration	0.68 (0.39)	0.72 (0.32)
Sleep Efficiency (%)	87.43 (6.42)	86.13 (6.09)
Sleep Latency	0.21 (0.16)	0.27 (0.23)

Sleep variables derived from rest-activity recordings (same variables as Table 3 of the main text); all times are indicated in decimal clock time or hours; LE = light exposure; all values are indicated as means and SD (in brackets) and shown for the PRE-LE week and LE week 5 (i.e. the last week of daily scheduled bright light exposure), n = 20 (there were no statistically significant differences between both weeks; $p > 0.36$).