

## Supplemental Information

### Evidence that the Lunar Cycle

#### Influences Human Sleep

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**Table S1. Results from the mixed model analysis for the different output variables described in the main text, Related to Figure 3**

Variable	Factor	Df	F-value	p-value
<b>Subjective Sleep Quality (Leeds)</b>	Lunar class	2	3.48	0.038
	Age	1	0.87	n.s.
	Gender	1	2.18	n.s.
	Age*Gender	1	0.41	n.s.
	Lunar class*Age	2	0.54	n.s.
	Lunar class*Gender	2	0.15	n.s.
	Lunar class*Age*Gender	2	0.33	n.s.
<b>Total Sleep Time</b>	Lunar class	2	3.16	0.05
	Age	1	7.26	0.01
	Gender	1	3.47	n.s.
	Age*Gender	1	0.69	n.s.
	Lunar class*Age	2	1.05	n.s.
	Lunar class*Gender	2	1.26	n.s.
	Lunar class*Age*Gender	2	0.33	n.s.
<b>Sleep Latency</b>	Lunar class	2	3.77	0.03
	Age	1	2.75	n.s.
	Gender	1	0.07	n.s.
	Age*Gender	1	0.03	n.s.

	Lunar class*Age	2	0.27	n.s.
	Lunar class*Gender	2	0.12	n.s.
	Lunar class*Age*Gender	2	0.59	n.s.
<b>REM sleep latency</b>	Lunar class	2	5.07	0.01
	Age	1	0.16	n.s.
	Gender	1	5.0	0.03
	Age*Gender	1	3.98	0.06
	Lunar class*Age	2	0.27	n.s.
	Lunar class*Gender	2	1.18	n.s.
	Lunar class*Age*Gender	2	0.7	n.s.
<b>Stage 4</b>	Lunar class	2	3.15	0.05
	Age	1	27.06	<0.001
	Gender	1	6.64	0.013
	Age*Gender	1	0.46	n.s.
	Lunar class*Age	2	2.23	n.s.
	Lunar class*Gender	2	0.41	n.s.
	Lunar class*Age*Gender	2	0.25	n.s.
<b>Delta-EEG Activity</b>	Lunar class	2	3.31	0.045
	Age	1	15.8	0.003
	Gender	1	20.24	<0.0001
	Age*Gender	1	0.62	n.s.
	Lunar class*Age	2	0.37	n.s.
	Lunar class*Gender	2	0.07	n.s.
	Lunar class*Age*Gender	2	0.34	n.s.
<b>Melatonin</b>	Lunar class	2	3.50	0.040
	Age	1	2.38	n.s.

Gender	1	0.74	n.s.
Age*Gender	1	3.19	n.s.
Lunar class*Age	2	3.55	0.039
Lunar class*Gender	2	3.2	0.05
Lunar class*Age*Gender	2	4.4	0.02

Please note that none of the interactions yielded significance, except for the average melatonin levels 2-hour prior bedtime, which revealed a significant interaction between “age” and “lunar class” as well as “gender” and “lunar class”. Further analyses, revealed that particularly young women contributed strongly to the significant main effects of “lunar class” (data not shown). For all variables *post-hoc* comparisons revealed a significant difference ( $p < 0.05$ ) between lunar class 1 and/or lunar class 2 and 3.

**Table S2. Classification of lunar phase, Related to the Experimental Procedures**

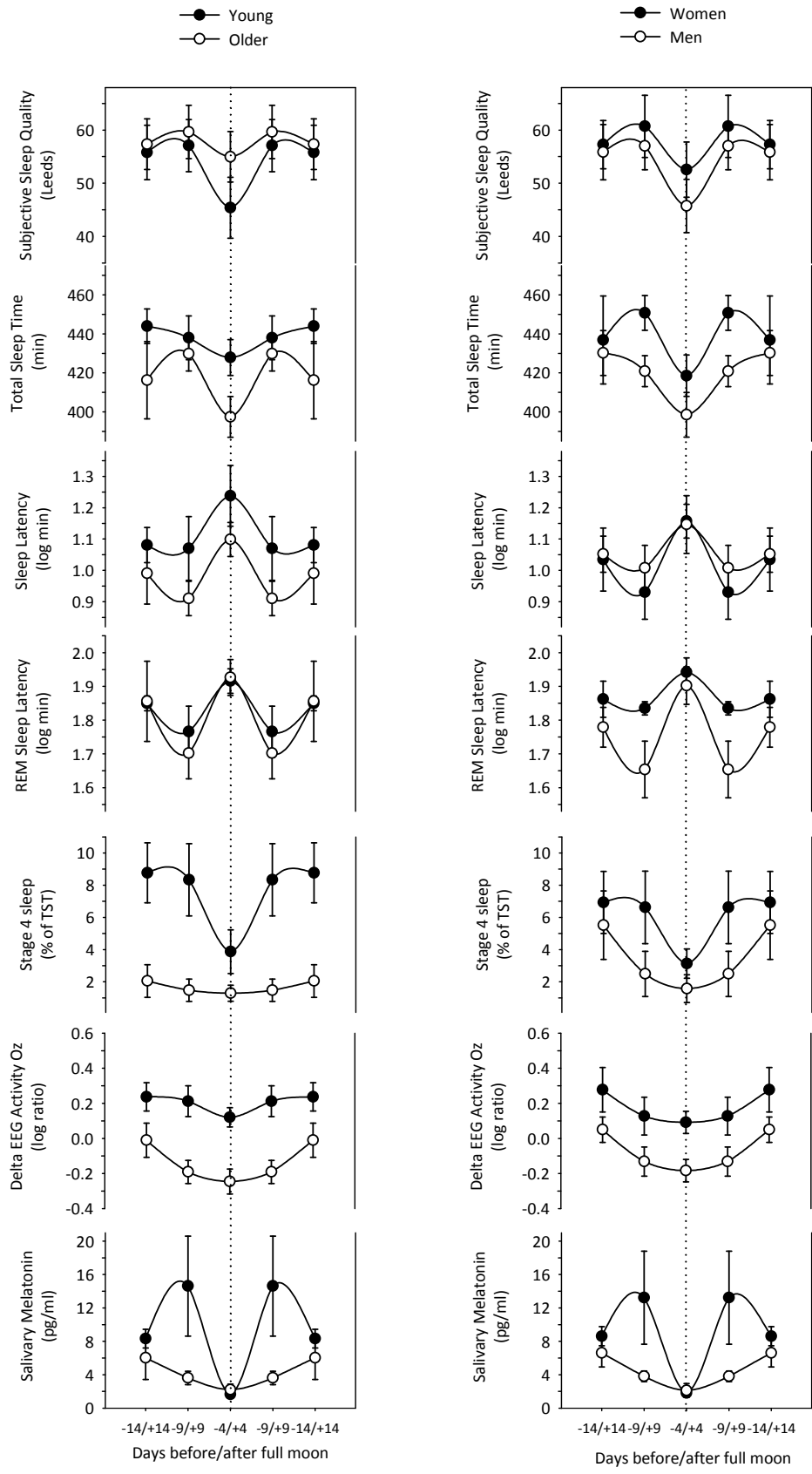
Date	Full moon before	Full moon after	Difference before	Difference after	Smallest Difference	Lunar class
<b>05.06.2001</b>	07.05.2001	06.06.2001	29 Days	1 Day	1 Day	<b>1</b>

The following example illustrates the lunar classification: the study volunteer spent his baseline night from 05.06.2001 to 06.06.2001 in the lab. Based on the data archive: New moon 23-04-2001, **Full moon 07.05.2001**, New moon 23.05.2001, **Full moon 06.06.2001** we calculated the lunar class 1 for this person as above.

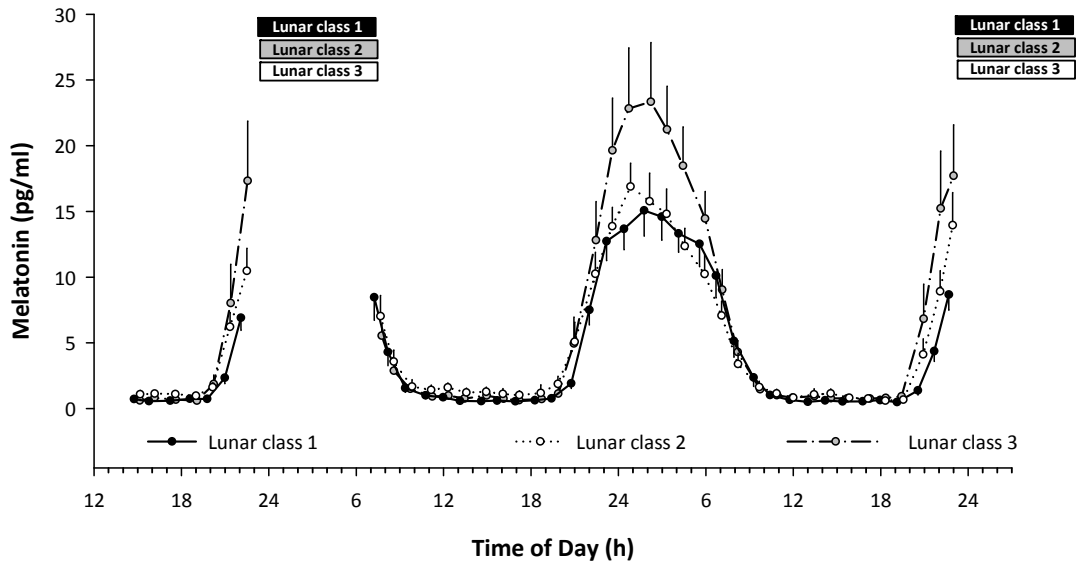
**Table S3. Distribution of the nights across lunar classes according to gender and age group, Related to the Experimental Procedures**

Lunar Class		1	2	3
<b>Young</b>	Women	8	5	4
<b>Young</b>	Men	4	4	8
<b>Older</b>	Women	8	4	3
<b>Older</b>	Men	7	6	3
<b>Young</b>		12	9	12
<b>Older</b>		15	10	6
<b>Women</b>		16	9	7
<b>Men</b>		11	10	11
<b>Total</b>		<b>27</b>	<b>19</b>	<b>18</b>

Statistics ( $\chi^2 \leq 2.14$ ,  $p$  at least 0.15) did not reveal any indications that the factors “gender” and “age group” were not uniformly distributed across the lunar classes.



**Figure S1. Data grouped by age and gender, Related to Figure 3**  
 For further information see figure legend of Figure 3.



**Figure S2. Related to Figure 2**

Time course of melatonin levels during the entire study averaged per lunar class, mean values + or – SEMs per 1.25 hourly bins. Boxes delineate the average bedtimes for lunar class 1 to 3.