**SUPPLEMENTARY MATERIAL**

1. **Experimental procedure**
	1. **Data assessment**

In the remote subsample, all experimental test phases were conducted web-based on a computer or laptop. Participants were instructed to perform the sessions alone at home. They were asked to wear headphones and to pay attention during all experimental phases and were informed that their attention might be tested at a random time by presenting a sequence of tones, which they had to count and recall immediately. At the beginning of each session, a neutral test tone was presented, which was matched to the loudness of the aversive film clip. Participants were instructed to adjust the volume to a level that was noisy but not painful. In the laboratory subsample, participants underwent experimental phases in a sound-proof booth on a 27” LCD monitor wearing headphones. The volume of the aversive film clip was set to 95 dB at peak (scream).

* 1. **Hypnotic suggestibility assessment**

Hypnotizability was assessed by means of the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS-A, Shor & Orne, 1963; German version by Bongartz, 1985). Participants listened to an audio file at home. The standardized text induces a hypnotic trance and suggestions of perceptual, motoric and cognitive sensations. After listening to the audio file, participants contacted the experimenter, who documented their experiences (0/1 = suggestion not successful/successful) using a standardized questionnaire via telephone.

* 1. **Sleep-directed hypnosis and control condition**

Prior to sleep in Night 2, participants of the hypnosis group were instructed to go to bed and to listen to a 13-minutes audio file from Cordi et al. (2014) that contained a hypnotic trance and a suggestion to sleep deeper. Participants were allowed to fall asleep while listening or were asked to go to sleep directly afterwards. In the control group, participants listened to an audio file with a similar length, containing a non-fictional text about natural mineral deposits which was spoken by the same voice (taken from Cordi et al., 2014). On the next day, participants were asked whether they have listened to the audio file. All participants reported having heard the audio file.

* 1. **Subjective sleep quality assessment**

Baseline sleep quality during screening was assessed by means of the single-item Sleep Quality Scale (SQS, Snyder et al., 2018) ranging from 0 (*terrible*) to 10 (*excellent*). For balancing, scores were categorized into low (SQS < 7, i.e., *terrible* to *moderate*) and high (SQS ≥ 7, i.e., *good* to *excellent*) sleep quality at baseline. In accordance with Cordi et al. (2014), sleep quality during the experimental days was assessed using a sleep questionnaire (Schlaffragebogen, Version A, revised (SF-A/R, Görtelmeyer, 2011, Hogrefe, Germany). Sleep quality was calculated based on two questions (23. *How did you sleep last night?* and 25. *How did you feel this morning?*), which were answered by rating 7 adjectives (e.g., *rested*, *deep*, *relaxed*; range: *not applicable* [1] to *very much* [5]).

* 1. **Polysomnographic recording and analyses (laboratory subsample)**

In accordance with the AASM guidelines (Berry et al., 2012), PSG measurement included EEG (Fz, Cz, Pz), EOG (diagonal) and EMG (submental). Signals were recorded referenced to the Cz and digitized at a 512 Hz sampling rate using the wireless *SOMNOtouch* system (SOMNOmedics, Germany). Data were filtered with a high-pass filter at 0.3 Hz, a Butterworth low-pass filter at 75 Hz and a Notch filter at 50 Hz. EEG signals were re-referenced offline to the average of both mastoids. Sleep stage scoring was performed via *FASST.2* (Leclercq et al., 2011). A trained experimenter scored 20-seconds epochs as N1 – N3, REM or wake stage. Based on scorings, the amount of time spent in sleep stages (minutes and % of total sleep time [TST]) was calculated for the whole night. In addition, sleep efficiency (% TST relative to time in bed), sleep onset latency (SOL, minutes from time attempting to sleep to sleep onset [first N1 period that was followed by N2]), and wake after sleep onset (WASO, minutes awake from sleep onset to the end of the sleep period) were calculated. Since effects of sleep-directed hypnosis have previously been shown to be most prominent in the first hour of sleep (Cordi et al., 2020), we additionally calculated the amount of N3 during the first hour starting from sleep onset. Likewise, latency of N3 and REM sleep was calculated from sleep onset. Artefact rejection and spectral analyses were performed using *EEGlab* (Delorme & Makeig, 2004). In accordance with Cordi et al. (2020), SWA (0.5 – 4.5 Hz), theta (4.5 – 8 Hz), alpha (8 - 11 Hz), slow (11 – 13 Hz), and fast spindles (13 – 15 Hz) as well as beta (15 – 32 Hz) and gamma (32 – 50 Hz) power were calculated for N2 and N3 sleep. Analyses were conducted separately for the whole night and the first hour of sleep. Two datasets were excluded from analyses of the whole night due to missing data at the end of the sleep period. Due to potential differences in total power (Cordi et al., 2020), SWA was calculated relative to the sum of all spectral bands, i.e. total power (see Cowdin et al., 2014). Relative SWA was averaged across all central electrodes (i.e., Fz, Cz, Pz). Whenever data was missing for individual electrodes, mean of spectral power was calculated based on the remaining electrodes.

* 1. **Fear conditioning procedure**

Participants were instructed to wear headphones during all experimental sessions. At the beginning of the first conditioning session, a text was presented introducing a female chef working at a restaurant. Afterwards, a 10-seconds film clip was presented, in which the chef had an accident and sustained severe burns, accompanied by a piercing scream. This aversive film clip served as US during acquisition training. Thereafter, three everyday objects (i.e., a brush, a cellphone and glasses) were randomly presented for 7 seconds in three wooden boxes respectively (differing in type of box and flooring of the background) to habituate participants to the stimuli. The objects served as neutral, to-be conditioned stimuli while the backgrounds (boxes and flooring) served as conditioning contexts. During habituation and all following phases, participants were asked to rate their expectation to be presented with the aversive film clip on a visual analog scale (US expectancy; range: very low expectancy [0] – very high expectancy [100]) beneath the stimulus. Prior to acquisition training, participants were instructed that the aversive film clip would follow some but not all objects that were to be presented and to pay attention which objects were followed by the film clip. Acquisition training was divided into two sequentially running blocks. In the first block, one of the objects (first CS+) was presented eight times of which six presentations were followed by the US (a 6-seconds version of the aversive film scene) intermixed with another object (CS-), which was presented eight times but never paired with the US. In the second block, the third object (second CS+) was presented, again followed by the US in six of eight trials intermixed with eight CS- trials without US presentations. During each acquisition trial, an empty box (acquisition context [CTX-A]) was presented for 10 seconds. Then, a CS appeared in the box for 7 seconds together with the US expectancy rating scale. In reinforced trials, the US was presented immediately after CS offset. During the inter-trial interval, CXT-A was again presented for a variable time (4-9 seconds). During extinction training, participants were presented with one of the two CS+ (extinguished CS+ [CS+E]) which was never followed by the US. CS+E trials appeared randomly intermixed with eight CS- trials, which were also not followed by the US. The trial procedure was similar to acquisition training though CSs were presented in a different background (extinction context, CTX-B). The retention and renewal tests were again divided into two sequentially running blocks. During each block, either the CS+E or the unextinguished CS+ (CS+U) was presented intermixed with CS- trials. Within blocks, each CS was shown four times, resulting in a total of four CS+E, four CS+U and 8 CS- trials per phase. Trial design and context presentation during the retention test was identical to extinction training. During the renewal test, CSs were presented in a new context (CTX-C). The order of CSs+ blocks within acquisition training, retention and renewal tests as well as the type of context (i.e., backgrounds in which CS were presented) across conditioning phases were balanced across groups and participants.

**1.7. Skin conductance response (laboratory subsample)**

Skin conductance was recorded at a sampling rate of 2048 Hz from two electrodes placed on the thenar and hypothenar muscles of the non-dominant hand using a *BioSemi ActiveTwo System* (BioSemi, Netherlands). Signal processing and skin conductance response (SCR) detection were performed using *ANSLAB* (Blechert et al., 2016). The raw signal was calibrated by the factor 0.001 and rectified using a 1 Hz low-pass filter. SCRs were determined as stimulus-related responses if the rise in skin conductance showed a minimum trough-to-peak amplitude of 0.01 micro-Siemens and reaction onset occurred within 0.9 – 3.5 seconds after stimulus onset as recommended for visual CS presentations (Sjouwerman & Lonsdorf, 2019). The amplitude’s maximum was determined as the positive peak within 7 seconds after stimulus onset. Amplitudes that did not meet these criteria were set to zero. Zero responses remained in the data set (i.e., SCR magnitude). Due to high intraindividual variance in SCRs, outlier detection (*Z* >= ±3) was performed within-subjects. Statistical outliers were winsorized to the lowest/highest raw score within *Z* =< ±3 of that individual. Afterwards, SCRs were square-root transformed.

**1.8. References**

Berry, R. B., Brooks, R., Gamaldo, C. E., Harding, S. M., Marcus, C. L., & Vaughn, B. V. (2012). *The AASM Manual for the Scoring of Sleep and Associated Events: Rules, Terminology and Technical Specifications, Version 2.0*. American Academy of Sleep Medicine. [www.aasmnet.org](http://www.aasmnet.org)

Blechert, J., Peyk, P., Liedlgruber, M., & Wilhelm, F.H. (2016). ANSLAB: Integrated multichannel peripheral biosignal processing in psychophysiological science. *Behav Res* **48,** 1528–1545. <https://doi.org/10.3758/s13428-015-0665-1>

Bongartz, W. (1985). German norms for the Harvard Group Scale of Hypnotic Susceptibility, Form A. *Int J Clin Exp Hypn, 33*(2), 131-139. <https://doi.org/10.1080/00207148508406643>

Cordi, M. J., Rossier, L., & Rasch, B. (2020). Hypnotic Suggestions Given before Nighttime Sleep Extend Slow-Wave Sleep as Compared to a Control Text in Highly Hypnotizable Subjects. *Int J Clin Exp Hypn, 68*(1), 105-129. <https://doi.org/10.1080/00207144.2020.1687260>

Cordi, M. J., Schlarb, A. A., & Rasch, B. (2014). Deepening sleep by hypnotic suggestion. *Sleep, 37*(6), 1143-1152, 1152A-1152F. <https://doi.org/10.5665/sleep.3778>

Cowdin, N., Kobayashi, I. & Mellman, T.A. (2014). Theta frequency activity during rapid eye movement (REM) sleep is greater in people with resilience versus PTSD. *Exp Brain Res* **232,** 1479–1485. <https://doi.org/10.1007/s00221-014-3857-5>

Delorme, A., & Makeig, S. (2004). EEGLAB: an open source toolbox for analysis of single-trial EEG dynamics including independent component analysis. *Journal of Neuroscience Methods*, *134*(1), 9-21. <https://doi.org/10.1016/j.jneumeth.2003.10.009>

Görtelmeyer R. (2011). *SF-A/R und SF-B/R - Schlaffragebogen A und B - Revidierte Fassung*. Göttingen: Hogrefe.

Leclercq, Y., Schrouff, J., Noirhomme, Q., Maquet, P., & Phillips, C. (2011). fMRI Artefact Rejection and Sleep Scoring Toolbox. *Computational Intelligence and Neuroscience*, *2011*, 1-11. <https://doi.org/10.1155/2011/598206>

Shor, R. E., & Orne, E. C. (1963). Norms on the Harvard group scale of hypnotic susceptibility, form A. *Int J Clin Exp Hypn, 11*, 39-47. <https://doi.org/10.1080/00207146308409226>

Sjouwerman, R., & Lonsdorf, T. B. (2019). Latency of skin conductance responses across stimulus modalities. *Psychophysiology*, *56*(4), e13307. <https://doi.org/10.1111/psyp.13307>

Snyder, E., Cai, B., Demuro, C., Morrison, M. F., & Ball, W. (2018). A New Single-Item Sleep Quality Scale: Results of Psychometric Evaluation in Patients With Chronic Primary Insomnia and Depression. *J Clin Sleep MedE, 14*(11), 1849-1857. <https://doi.org/10.5664/jcsm.7478>

1. **Model parameters and coefficient tables**
	1. **Effect of sleep-directed hypnosis on sleep characteristics**
		1. **Subjective sleep quality**

**Table 1**

*Comparisons of fit indices in models on sleep quality on Day 1 and 2 in the hypnosis group*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | Day | Intercept | 420.15 | 436.23 | - | - | - | - |
| 2. | Day | Intercept, slope (Day) | 423.42 | 452.36 | 1 | 4.73 | 4 | .316 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects (Intercept, Day) by subject-nested-in-study, random effects (Intercept, Day)) by study.

**Table 2**

*Coefficient table of fixed effects (final model) for sleep quality on Day 1 and 2 in the hypnosis group*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 3.10 | 0.11 | 2.88 | 3.33 | 27.27 | 91 | < .001 |
| Day**a** | -0.43 | 0.17 | -0.76 | -0.10 | -2.60 | 90 | .011 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**Day 1 = -0.5, Day 2 = 0.5. **b**Control group = -0.5, hypnosis group = 0.5.

**Table 3**

*Comparisons of fit indices in models on sleep quality on Day 1 and 2 in the control group*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | Day | Intercept | 367.08 | 382.93 | - | - | - | - |
| 2. | Day | Intercept, slope (Day) | 373.80 | 402.34 | 1 | 1.28 | 4 | .865 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects (Intercept, Day) by subject-nested-in-study, random effects (Intercept, Day, Group)) by study.

**Table 4**

*Coefficient table of fixed effects (final model) for sleep quality on Day 1 and 2 in the control group*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 3.34 | 0.08 | 3.17 | 3.50 | 40.24 | 87 | < .001 |
| Day**a** | -0.36 | 0.16 | -0.69 | -0.04 | -0.36 | 87 | .031 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**Day 1 = -0.5, Day 2 = 0.5. **b**Control group = -0.5, hypnosis group = 0.5.

**Table 5**

*Comparisons of fit indices in models on sleep quality on Day 2 and 3*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | Day\*Group+Sleep Quality (Day 1) | Intercept | 772.14 | 803.12 | - | - | - | - |
| 2. | Day\*Group+Sleep Quality (Day 1) | Intercept, slope (Day) | 776.67 | 823.14 | 1 | 3.47 | 4 | .482 |
| 3. | Day\*Group+Sleep Quality (Day 1) | Intercept, slope (Group) | 776.12 | 814.84 | 1 | 0.02 | 2 | .988 |
| 4. | Day\*Group+Sleep Quality (Day 1) | Intercept, slope (Sleep Quality [Day 1]) | 775.62 | 814.34 | 1 | 0.52 | 2 | .770 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects (Intercept, Day) by subject-nested-in-study, random effects (Intercept, Day, Group, Sleep Quality (Day 1)) by study.

**Table 6**

Coefficient table of fixed effects (final model) for sleep quality on Day 2 and 3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 3.18 | 0.16 | 2.85 | 3.50 | 19.12 | 177 | < .001 |
| Day**a** | -0.03 | 0.07 | -0.17 | 0.10 | -0.49 | 172 | .626 |
| Group**b** | 0.11 | 0.08 | -0.05 | 0.27 | 1.35 | 177 | .180 |
| Sleep Quality (Day 1)**c** | 0.38 | 0.06 | 0.27 | 0.49 | 6.76 | 177 | < .001 |
| Day\*Group | 0.52 | 0.14 | 0.26 | 0.79 | 3.86 | 172 | < .001 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**Day 2 = -0.5, Day 3 = 0.5. **b**Control group = -0.5, hypnosis group = 0.5. **c** Sleep Quality (Day 1) was centered within study.

* + 1. **Relationship between subjective sleep quality and objective sleep parameters**

**Table 7**

Coefficient table of fixed effects for change in subjective sleep quality (Day 3–Day 2) in the laboratory subsample

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | -0.18 | 0.11 | -0.40 | 0.04 | -1.66 | 65 | .102 |
| Group**a** | 0.54 | 0.22 | 0.10 | 0.98 | 2.45 | 65 | .017 |
| N3**b** | 0.01 | 0.003 | 0.003 | 0.01 | 2.90 | 65 | .005 |
| Group\*N3 | 0.01 | 0.01 | -0.003 | 0.02 | 1.54 | 65 | .128 |

*Note.* The coefficients derived from a robust linear regression model. Asterisk indicates that interaction terms were included in the model. CI = confidence interval. **a** Control group = -0.5, hypnosis group = 0.5 **b**N3 was mean-centered.

**Table 8**

Coefficient table of fixed effects for change in subjective sleep quality (Day 3–Day 2) in the laboratory subsample

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | -0.19 | 0.11 | -0.41 | 0.03 | -1.71 | 67 | .092 |
| Group**a** | 0.58 | 0.22 | 0.13 | 1.02 | 2.60 | 67 | .012 |
| N3 latency**b** | -0.03 | 0.02 | -0.06 | 0.003 | -1.82 | 67 | .074 |
| Group\*N3 latency | -0.04 | 0.03 | -0.11 | 0.02 | -1.35 | 67 | .183 |

*Note.* The coefficients derived from a robust linear regression model. Asterisk indicates that interaction terms were included in the model. CI = confidence interval. **a** Control group = -0.5, hypnosis group = 0.5 **b**N3 latency was mean-centered.

**Table 9**

Coefficient table of fixed effects for change in subjective sleep quality (Day 3–Day 2) in the laboratory subsample

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | -0.26 | 0.13 | -0.51 | -0.001 | -2.01 | 60 | .049 |
| Group**a** | 0.47 | 0.26 | -0.05 | 0.99 | 1.82 | 60 | .075 |
| SWA power (first hour)**b** | 0.02 | 0.03 | -0.05 | 0.09 | 0.50 | 60 | .623 |
| Group\*SWA power (first hour) | 0.12 | 0.07 | -0.02 | 0.26 | 1.75 | 60 | .085 |

*Note.* The coefficients derived from a robust linear regression model. Asterisk indicates that interaction terms were included in the model. CI = confidence interval. **a** Control group = -0.5, hypnosis group = 0.5 **b**SWA power (first hour) was mean-centered.

**Table 10**

Coefficient table of fixed effects for change in subjective sleep quality (Day 3–Day 2) in the laboratory subsample

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | -0.21 | 0.11 | -0.44 | 0.01 | -1.88 | 63 | .064 |
| Group**a** | 0.45 | 0.22 | -0.002 | 0.89 | 1.99 | 63 | .051 |
| WASO**b** | -0.03 | 0.01 | -0.05 | -0.01 | -2.70 | 63 | .009 |
| Group\*WASO | -0.01 | 0.02 | -0.05 | 0.03 | -0.69 | 63 | .494 |

*Note.* The coefficients derived from a robust linear regression model. Asterisk indicates that interaction terms were included in the model. CI = confidence interval. **a** Control group = -0.5, hypnosis group = 0.5 **b**WASO was mean-centered.

* 1. **Effects of sleep-directed hypnosis on fear extinction recall and film-related intrusions and rumination**
		1. **US expectancy**
		2. **Acquisition training**

**Table 11**

*Comparisons of fit indices in models on US expectancy during acquisition training including averaged CS+ and CS-*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | CS type\* Trial\*Group | Intercept | 25400.92 | 25466.60 | - | - | - | - |
| 2. | CS type\* Trial\*Group | Intercept, slope (Trial) | 25399.87 | 25489.44 | 1 | 9.05 | 4 | .060 |
| 3. | CS type\* Trial\*Group | Intercept, slope (CS type) | 24853.49 | 24943.06 | 1 | 555.43 | 4 | < .001 |
| 4. | CS type\* Trial\*Group | Intercept, slopes (CS type, Trial) | 24849.49 | 24974.88 | 3 | 16.00 | 6 | .014 |
| 5. | CS type\* Trial\*Group | Intercept, slopes (CS type, Trial, Group) | 24857.44 | 25006.72 | 3 | 0.05 | 4 | > .999 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects (Intercept, Trial, CS type) by subject-nested-in-study, random effects (Intercept, Trial, CS type, Group) by study.

**Table 12**

Coefficient table of fixed effects (final model) for US expectancy during acquisition training averaged CS+ and CS-

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 45.17 | 0.62 | 43.96 | 46.39 | 72.81 | 2709 | < .001 |
| Trial**a** | 2.43 | 0.14 | 2.16 | 2.70 | 17.87 | 2709 | < .001 |
| CS+ type**b** | 66.79 | 1.54 | 63.76 | 69.81 | 43.29 | 2709 | < .001 |
| Group**c** | 0.65 | 1.24 | -1.79 | 3.09 | 0.53 | 178 | .599 |
| CS type\*Trial | 7.16 | 0.26 | 6.66 | 7.66 | 27.97 | 2709 | < .001 |
| CS type\*Group | 1.46 | 3.09 | -4.58 | 7.50 | 0.47 | 2709 | .636 |
| Trial\*Group | 0.05 | 0.27 | -0.48 | 0.58 | 0.18 | 2709 | .857 |
| CS type\*Trial\*Group | 0.37 | 0.51 | -0.63 | 1.37 | 0.73 | 2709 | .468 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**Trial was mean-centered. **b**CS- = -0.5, CS+ = 0.5. **c** Control group = -0.5, Hypnosis group = 0.5.

* + 1. **Extinction training**

**Table 13**

*Comparisons of fit indices in models on US expectancy during extinction training including CS+****E*** *and CS-*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | CS type\* Trial\*Group | Intercept | 26074.47 | 26140.06 | - | - | - | - |
| 2. | CS type\* Trial\*Group | Intercept, slope (Trial) | 26027.37 | 26116.82 | 1 | 55.09 | 4 | < .001 |
| 3. | CS type\* Trial\*Group | Intercept, slope (CS type) | 24341.70 | 24431.15 | 1 | 1740.76 | 4 | < .001 |
| 4. | CS type\* Trial\*Group | Intercept, slopes (CS type, Trial) | 24023.16 | 24148.39 | 3 | 330.54 | 6 | < .001 |
| 5. | CS type\* Trial\*Group | Intercept, slopes (CS type, Trial, Group) | 24028.84 | 24177.92 | 3 | 2.32 | 4 | .677 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects (Intercept, Trial, CS type) by subject-nested-in-study, random effects (Intercept, Trial, CS type, Group) by study.

**Table 14**

Coefficient table of fixed effects (final model) for US expectancy during extinction training including CS+**E** and CS-

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 33.04 | 1.37 | 30.35 | 35.73 | 24.05 | 2686 | < .001 |
| Trial**a** | -2.40 | 0.54 | -3.45 | -1.35 | -2.40 | 2686 | < .001 |
| CS+ type**b** | 48.16 | 2.73 | 42.81 | 53.51 | 48.16 | 2686 | < .001 |
| Group**c** | 1.04 | 2.38 | -3.66 | 5.73 | 1.04 | 178 | .664 |
| CS type\*Trial | -3.14 | 0.20 | -3.54 | -2.74 | -3.14 | 2686 | < .001 |
| CS type\*Group | -1.46 | 4.64 | -10.55 | 7.63 | -1.45 | 2686 | .753 |
| Trial\*Group | 0.45 | 0.42 | -0.38 | 1.27 | 0.45 | 2686 | .288 |
| CS type\*Trial\*Group | 0.01 | 0.41 | -0.79 | 0.81 | 0.01 | 2686 | .979 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**Trial was mean-centered. **b**CS- = -0.5, CS+**E** = 0.5. **c** Control group = -0.5, Hypnosis group = 0.5.

* + 1. **Retention test**

**Table 15**

*Comparisons of fit indices in models on US expectancy during retention test including difference scores of CS+****E*** *and CS+****U***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | CS+ type\*Group | Intercept | 3424.07 | 3451.27 | - | - | - | - |
| 2. | CS+ type\*Group | Intercept, slope (CS+ type) | 3429.40 | 3472.14 | 1 | 2.67 | 4 | .614 |
| 3. | CS+ type\*Group | Intercept, slope (Group) | 3424.37 | 3459.34 | 1 | 3.71 | 2 | .157 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects (Intercept, CS type) by subject-nested-in-study, random effects (Intercept, CS type, Group) by study.

**Table 16**

Coefficient table of fixed effects (final model) for US expectancy during retention test including difference scores of CS+**E** and CS+**U**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 42.89 | 4.90 | 33.28 | 52.50 | 8.76 | 178 | < .001 |
| CS+ type**a** | -11.98 | 1.97 | -15.86 | -11.98 | -6.07 | 178 | < .001 |
| Group**b** | -1.30 | 4.30 | -9.74 | -1.30 | -0.30 | 177 | .762 |
| CS+ type\*Group | 1.76 | 3.95 | -5.98 | 9.50 | 0.45 | 178 | .656 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**CS+**U** = -0.5, CS+**E** = 0.5. **b** Control group = -0.5, hypnosis group = 0.5.

* + 1. **Renewal test**

**Table 17**

*Comparisons of fit indices in models on US expectancy during renewal test including difference scores of CS+****E*** *and CS+****U***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | CS+ type\*Group | Intercept | 3376.65 | 3403.83 | - | - | - | - |
| 2. | CS+ type\*Group | Intercept, slope (CS+ type) | 3382.19 | 3424.90 | 1 | 2.46 | 4 | .651 |
| 3. | CS+ type\*Group | Intercept, slope (Group) | 3378.77 | 3413.72 | 1 | 1.88 | 2 | .390 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects (Intercept, CS type) by subject-nested-in-study, random effects (Intercept, CS type, Group) by study.

**Table 18**

Coefficient table of fixed effects (final model) for US expectancy during renewal test including difference scores of CS+**E** and CS+**U**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 34.89 | 4.64 | 25.79 | 43.98 | 7.53 | 177 | < .001 |
| CS+ type**a** | -4.75 | 1.77 | -8.22 | -1.27 | -2.68 | 177 | .008 |
| Group**b** | -0.66 | 4.32 | -9.14 | 7.82 | -0.15 | 177 | .878 |
| CS+ type\*Group | 0.41 | 3.54 | -6.54 | 7.36 | 0.11 | 177 | .909 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**CS+**U** = -0.5, CS+**E** = 0.5. **b** Control group = -0.5, hypnosis group = 0.5.

* 1. **Skin conductance response**
		1. **Acquisition training**

**Table 19**

*Comparisons of fit indices in models on skin conductance responses (square-root-transformed) during acquisition training including averaged CS+ and CS- in the laboratory subsample*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | CS type\* Trial\*Group | Intercept | 30.02 | 80.48 | - | - | - | - |
| 2. | CS type\* Trial\*Group | Intercept, slope (Trial) | 27.62 | 88.18 | 1 | 6.39 | 2 | .041 |
| 3. | CS type\* Trial\*Group | Intercept, slope (CS type) | 11.27 | 71.83 | 1 | 22.74 | 2 | < .001 |
| 4. | CS type\* Trial\*Group | Intercept, slopes (CS type, Trial) | 10.93 | 86.63 | 3 | 6.35 | 3 | .096 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** By-subject random effects.

**Table 20**

Coefficient table of fixed effects (final model) for skin conductance responses (square-root-transformed) during the acquisition training including averaged CS+ and CS- in the laboratory subsample

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 0.33 | 0.03 | 0.27 | 0.39 | 11.21 | 1070 | < .001 |
| Trial**a** | -0.01 | 0.002 | -0.02 | -0.004 | -3.63 | 1070 | < .001 |
| CS type**b** | 0.09 | 0.02 | 0.06 | 0.13 | 5.63 | 1070 | < .001 |
| Group**c** | 0.04 | 0.06 | -0.08 | 0.15 | 0.62 | 71 | .536 |
| CS type\*Trial | -0.01 | 0.01 | -0.02 | 0.002 | -1.55 | 1070 | .121 |
| CS type\*Group | 0.01 | 0.03 | -0.05 | 0.08 | 0.33 | 1070 | .739 |
| Trial\*Group | 0.005 | 0.006 | -0.006 | 0.02 | 0.87 | 1070 | .382 |
| CS type\*Trial\*Group | 0.01 | 0.01 | -0.01 | 0.03 | 1.15 | 1070 | .252 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**Trial was mean-centered. **b**CS- = -0.5, CS+ = 0.5. **c** Control group = -0.5, Hypnosis group = 0.5.

* + 1. **Extinction training**

**Table 21**

*Comparisons of fit indices in models on skin conductance responses (square-root-transformed) during extinction training including CS+****E*** *and CS*- *in the laboratory subsample*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | CS type\* Trial\*Group | Intercept | -68.77 | -18.33 | - | - | - | - |
| 2. | CS type\* Trial\*Group | Intercept, slope (Trial) | -67.35 | -6.83 | 1 | 2.59 | 2 | .275 |
| 3. | CS type\* Trial\*Group | Intercept, slope (CS type) | -87.19 | -26.67 | 1 | 22.43 | 2 | < .001 |
| 4. | CS type\* Trial\*Group | Intercept, slopes (CS type, Trial) | -84.95 | -9.31 | 3 | 3.76 | 3 | .288 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** By-subject random effects.

**Table 22**

Coefficient table of fixed effects (final model) for skin conductance responses (square-root-transformed) during extinction training including CS+**E** and CS- in the laboratory subsample

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 0.20 | 0.03 | 0.14 | 0.24 | 7.04 | 1067 | < .001 |
| Trial**a** | -0.02 | 0.003 | -0.02 | -0.01 | -6.57 | 1067 | < .001 |
| CS+ type**b** | 0.03 | 0.02 | 0.002 | 0.06 | 2.11 | 1067 | .035 |
| Group**c** | 0.05 | 0.05 | -0.06 | 0.15 | 0.86 | 70 | .390 |
| CS type\*Trial | -0.01 | 0.01 | -0.02 | 0.004 | -1.23 | 1067 | .218 |
| CS type\*Group | -0.01 | 0.03 | -0.07 | 0.05 | -0.27 | 1067 | .784 |
| Trial\*Group | -0.005 | 0.01 | -0.02 | 0.01 | -0.92 | 1067 | .359 |
| CS type\*Trial\*Group | -0.001 | 0.01 | -0.02 | 0.02 | -0.10 | 1067 | .917 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**Trial was mean-centered. **b**CS- = -0.5, CS+**E** = 0.5. **c** Control group = -0.5, Hypnosis group = 0.5.

* + 1. **Retention test**

**Table 23**

*Comparisons of fit indices in models on skin conductance response (square-root-transformed) during retention test including difference scores of CS+****E*** *and CS+****U*** *in the laboratory subsample*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | CS+ type\*Group | Intercept | -121.83 | -104.22 | - | - | - | - |
| 2. | CS+ type\*Group | Intercept, slope (CS+ type) | -125.18 | -101.71 | 1 | 7.35 | 2 | .025 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** By-subject random effects.

**Table 24**

Coefficient table of fixed effects (final model) for skin conductance response (square-root-transformed) during retention test including difference scores of CS+**E** and CS+**U** in the laboratory subsample

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 0.09 | 0.02 | 0.06 | 0.13 | 5.09 | 68 | < .001 |
| CS+ type**a** | -0.08 | 0.02 | -0.11 | -0.04 | -4.28 | 67 | < .001 |
| Group**b** | 0.04 | 0.04 | -0.03 | 0.12 | 1.23 | 68 | .224 |
| CS+ type\*Group | 0.04 | 0.04 | -0.03 | 0.12 | 1.20 | 67 | .233 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**CS+**U** = -0.5, CS+**E** = 0.5. **b** Control group = -0.5, hypnosis group = 0.5.

* + 1. **Renewal test**

**Table 25**

*Comparisons of fit indices in models on skin conductance response (square-root-transformed) during renewal test including difference scores of CS+****E*** *and CS+****U*** *in the laboratory subsample*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | CS+ type\*Group | Intercept | -93.60 | -76.04 | - | - | - | - |
| 2. | CS+ type\*Group | Intercept, slope (CS+ type) | -97.44 | -74.02 | 1 | 7.84 | 2 | .020 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** By-subject random effects.

**Table 26**

Coefficient table of fixed effects (final model) for skin conductance response (square-root-transformed) during renewal test including difference scores of CS+**E** and CS+**U** in the laboratory subsample

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 0.03 | 0.02 | -0.003 | 0.06 | 1.79 | 67 | .078 |
| CS+ type**a** | -0.04 | 0.03 | -0.09 | 0.01 | -1.52 | 67 | .132 |
| Group**b** | 0.05 | 0.03 | -0.005 | 0.11 | 1.81 | 67 | .075 |
| CS+ type\*Group | 0.10 | 0.05 | -0.003 | 0.21 | 1.91 | 67 | .061 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**CS+**U** = -0.5, CS+**E** = 0.5. **b** Control group = -0.5, hypnosis group = 0.5.

* 1. **Intrusions and rumination**
		1. **IMQ: Intrusion index**

**Table 27**

*Comparisons of fit indices in models on intrusion index (IMQ)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | Day\*Group | Intercept | 1528.68 | 1555.74 | - | - | - | - |
| 2. | Day\*Group | Intercept, slope (Day) | 1533.63 | 1576.16 | 1 | 3.05 | 4 | .549 |
| 3. | Day\*Group | Intercept, slope (Group) | 1532.72 | 1567.52 | 1 | 0.04 | 2 | .979 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects (Intercept, Day) by subject-nested-in-study, random effects (Intercept, Day, Group) by study.

**Table 28**

Coefficient table of fixed effects (final model) for intrusion index (IMQ)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 0.02 | 0.16 | -0.30 | 0.33 | 0.11 | 178 | .914 |
| Day**a** | -0.81 | 0.17 | -1.15 | -0.48 | -4.80 | 170 | < .001 |
| Group**b** | -0.09 | 0.29 | -0.66 | 0.47 | -0.32 | 178 | .746 |
| Day\*Group | -0.11 | 0.34 | -0.77 | 0.56 | -0.31 | 170 | .757 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**Day 2 = -0.5, Day 3 = 0.5. **b** Control group = -0.5, hypnosis group = 0.5.

* + 1. **IMQ: Rumination index**

**Table 29**

*Comparisons of fit indices in models on rumination index (IMQ)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | Day\*Group | Intercept | 1487.84 | 1514.83 | - | - | - | - |
| 2. | Day\*Group | Intercept, slope (Day) | 1475.58 | 1518.00 | 1 | 20.26 | 4 | < .001 |
| 3. | Day\*Group | Intercept, slope (Group) | 1481.54 | 1535.51 | 1 | 0.04 | 3 | .998 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects (Intercept, Day) by subject-nested-in-study, random effects (Intercept, Day, Group) by study.

**Table 30**

Coefficient table of fixed effects (final model) for rumination index (IMQ)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 0.02 | 0.15 | -0.28 | 0.32 | 0.12 | 176 | .897 |
| Day**a** | -1.24 | 0.34 | -1.90 | -0.58 | -3.69 | 168 | < .001 |
| Group**b** | -0.21 | 0.28 | -0.77 | 0.35 | -0.74 | 176 | .458 |
| Day\*Group | -0.41 | 0.32 | -1.04 | 0.22 | -1.29 | 168 | .199 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**Day 2 = -0.5, Day 3 = 0.5. **b** Control group = -0.5, hypnosis group = 0.5.

* + 1. **IPT: Intrusion index**

**Table 31**

*Comparisons of fit indices in models on rumination index (IMQ)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | Group | Intercept | 754.53 | 767.16 | - | - | - | - |
| 2. | Group | Intercept, slope (Group) | 758.53 | 777.48 | 1 | 0.001 | 2 | > .999 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects by study.

**Table 32**

Coefficient table of fixed effects for intrusion index (IPT)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 0.01 | 0.16 | -0.30 | 0.32 | 0.05 | 171 | .964 |
| Group**a** | -0.18 | 0.32 | -0.80 | 0.44 | -0.56 | 171 | .577 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**Control group = -0.5, hypnosis group = 0.5.

1. **Supplemental analyses investigating potential Subsample effects**

In order to test whether the reported results may have differed between subsamples, additional analyses of the main findings were carried out including ‘Subsample’ and its interactions as fixed effects.

* 1. **Effect of sleep-directed hypnosis on sleep characteristics**
		1. **Subjective Sleep Quality**

A LMM analysis including the fixed effects Day (2, 3), Group (hypnosis, control), Subsample (remote, laboratory), their interactions, and Sleep Quality on Day 1 as covariate and subjective sleep quality as outcome variable was carried out. The analysis revealed a main effect of Subsample, *b* = -0.47, 95% CI [‑0.63 -0.30], *se* = 0.08, *t*(176) = ‑5.60, *p* = .035. The remote subsample reported higher subjective sleep quality than the laboratory subsample. No interaction effects of Subsample and Group were found (*p*s > .05). Introducing Subsample as fixed effect did not change the direction of results reported in the main text (see Table 34, for coefficients and test statistics).

**Table 33**

*Comparisons of fit indices in models on sleep quality on Day 2 and 3 including subsample as fixed effect*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | Day\*Group\*Subsample+Sleep Quality (Day 1) | Intercept | 769.41 | 812.01 | - | - | - | - |
| 2. | Day\*Group\*Subsample+Sleep Quality (Day 1) | Intercept, slope (Day) | 770.36 | 820.70 | 1 | 3.05 | 2 | .218 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects by subject.

**Table 34**

Coefficient table of fixed effects (final model) for sleep quality on Day 2 and 3 including subsample as fixed effect

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 3.17 | 0.04 | 3.09 | 3.25 | 76.09 | 176 | < .001 |
| Day**a** | -0.04 | 0.07 | -0.18 | 0.09 | -0.61 | 170 | .543 |
| Group**b** | 0.11 | 0.08 | -0.06 | 0.27 | 1.26 | 176 | .210 |
| Subsample**c** | -0.47 | 0.08 | -0.63 | -0.30 | -5.60 | 176 | < .001 |
| Sleep Quality (Day 1)**d** | 0.38 | 0.06 | 0.27 | 0.49 | 6.77 | 176 | < .001 |
| Day\*Group | 0.54 | 0.14 | 0.27 | 0.81 | 3.90 | 170 | < .001 |
| Day\*Subsample | -0.11 | 0.14 | -0.37 | 0.16 | -0.76 | 170 | .447 |
| Group\*Subsample | -0.05 | 0.17 | -0.38 | 0.27 | -0.33 | 176 | .742 |
| Day\*Group\*Subsample | 0.19 | 0.28 | -0.35 | 0.73 | 0.67 | 170 | .502 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**Day 2 = -0.5, Day 3 = 0.5. **b**Control group = -0.5, hypnosis group = 0.5. **c** Remote subsample = -0.5, laboratory subsample = 0.5. **d** Sleep Quality (Day 1) was mean-centered.

* 1. **Effects of sleep-directed hypnosis on fear extinction recall and film-related intrusions and rumination**
		1. **US expectancy – Retention test**

A LMM analysis including the fixed effects CS+ type (difference scores for CS+**E** and CS+**U**), Group (hypnosis, control), Subsample (remote, laboratory), and their interactions and US expectancy as outcome variable was carried out. The analysis revealed a Group\*Subsample interaction effect, *b* = ‑18.41, 95% CI [-35.29, -14.93], *se* = 8.65, *t*(176) = ‑2.13, *p* = .035 (see Table 36, for all coefficients and test statistics). Therefore, we conducted additional analyses separately for each subsample. These analyses showed no significant effects of the experimental group in both subsamples (*p*s > .05; see Table 38 and 40, for coefficients and test statistics). Analyses for each subsample respectively revealed no differences in the direction of results reported in the main text

**Table 35**

*Comparisons of fit indices in models on US expectancy during retention test including difference scores of CS+****E*** *and CS+****U*** *and subsample as fixed effects*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | CS+ type\*Group\*Subsample | Intercept | 3416.96 | 3455.82 | - | - | - | - |
| 2. | CS+ type\*Group\*Subsample | Intercept, slope (CS+ type) | 3420.85 | 3467.48 | 1 | 0.11 | 2 | .947 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects by subject.

**Table 36**

Coefficient table of fixed effects (final model) for US expectancy during retention test including difference scores of CS+**E** and CS+**U** and subsample as fixed effects

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 43.21 | 2.16 | 38.99 | 47.43 | 19.99 | 176 | <.001 |
| CS+ type**a** | -12.65 | 2.00 | -16.56 | -8.75 | -6.32 | 176 | <.001 |
| Group**b** | -3.06 | 4.32 | -11.50 | 5.37 | -0.71 | 176 | .480 |
| Subsample**c** | 14.12 | 4.32 | 5.68 | 22.55 | 3.26 | 176 | .001 |
| CS+ type\*Group | 1.66 | 4.00 | -6.15 | 9.48 | 0.42 | 176 | .679 |
| CS+ type\*Subsample | -7.11 | 4.00 | -14.93 | 0.70 | -1.78 | 176 | .077 |
| Group\*Subsample | -18.41 | 8.65 | -35.29 | -1.53 | -2.13 | 176 | .035 |
| CS+ type\*Group\*Subsample | -1.51 | 8.01 | -17.15 | 14.11 | -0.19 | 176 | .850 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**CS+**U** = -0.5, CS+**E** = 0.5. **b** Control group = -0.5, hypnosis group = 0.5. **c** Remote subsample = -0.5, Laboratory subsample = 0.5.

**Table 37**

*Comparisons of fit indices in models on US expectancy during retention test including difference scores of CS+****E*** *and CS+****U*** *in the remote subsample*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | CS+ type\*Group | Intercept | 2019.38 | 2039.58 | - | - | - | - |
| 2. | CS+ type\*Group | Intercept, slope (CS+ type) | 2022.55 | 2049.48 | 1 | 0.83 | 2 | .660 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects by subject.

**Table 38**

Coefficient table of fixed effects (final model) for US expectancy during retention test including difference scores of CS+**E** and CS+**U** **in the remote subsample**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 36.15 | 2.64 | 30.98 | 41.33 | 13.72 | 105 | <.001 |
| CS+ type**a** | -9.10 | 2.51 | -14.03 | -4.17 | -3.63 | 105 | <.001 |
| Group**b** | 6.14 | 5.27 | -4.21 | 16.50 | 1.17 | 105 | .247 |
| CS+ type\*Group | 2.42 | 5.02 | -7.43 | 12.28 | 0.48 | 105 | .631 |

Note. The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**CS+**U** = -0.5, CS+**E** = 0.5. **b** Control group = -0.5, hypnosis group = 0.5.

**Table 39**

*Comparisons of fit indices in models on US expectancy during retention test including difference scores of CS+****E*** *and CS+****U*** *in the laboratory subsample*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | CS+ type\*Group | Intercept | 1400.65 | 1418.55 | - | - | - | - |
| 2. | CS+ type\*Group | Intercept, slope (CS+ type) | 1402.53 | 1426.40 | 1 | 2.12 | 2 | .346 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects by subject.

**Table 40**

Coefficient table of fixed effects (final model) for US expectancy during retention test including difference scores of CS+**E** and CS+**U** **in the laboratory subsample**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 50.27 | 1.53 | 43.32 | 57.22 | 14.23 | 71 | <.001 |
| CS+ type**a** | -16.21 | 3.16 | -22.42 | -10.00 | -5.13 | 71 | <.001 |
| Group**b** | -12.27 | 7.07 | -26.16 | 1.63 | -1.74 | 71 | .087 |
| CS+ type\*Group | 0.90 | 6.32 | -11.52 | 13.33 | 0.14 | 71 | .887 |

Note. The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**CS+**U** = -0.5, CS+**E** = 0.5. **b** Control group = -0.5, hypnosis group = 0.5.

* + 1. **US expectancy – Renewal test**

A LMM analysis including the fixed effects CS+ type (difference scores for CS+**E** and CS+**U**), Group (hypnosis, control), Subsample (remote, laboratory), and their interactions and US expectancy as outcome variable was carried out. The analysis revealed a main effect of Subsample, *b* = 13.32, 95% CI [4.37, 21.85], *se* = 4.37, *t*(176) = 3.05, *p* = .003. The laboratory subsample reported higher US expectancy scores than the remote subsample. No interaction effects of Subsample and Group were found (*p*s > .05). Introducing Subsample as fixed effect did not change the direction of results reported in the main text (see Table 42, for coefficients and test statistics).

**Table 41**

*Comparisons of fit indices in models on US expectancy during renewal test including difference scores of CS+****E*** *and CS+****U*** *and subsample as fixed effects*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | CS+ type\*Group\*Subsample | Intercept | 3372.06 | 3410.89 | - | - | - | - |
| 2. | CS+ type\*Group\*Subsample | Intercept, slope (CS+ type) | 3376.05 | 3422.65 | 1 | 0.01 | 2 | .997 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects by subject.

**Table 42**

Coefficient table of fixed effects (final model) for US expectancy during renewal test including difference scores of CS+**E** and CS+**U** and subsample as fixed effects

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 35.20 | 2.19 | 30.94 | 39.47 | 16.10 | 176 | <.001 |
| CS+ type**a** | -5.32 | 1.80 | -8.82 | -1.81 | -2.96 | 175 | .004 |
| Group**b** | -1.96 | 4.37 | -10.49 | 6.57 | -0.45 | 176 | .655 |
| Subsample**c** | 13.32 | 4.37 | 4.79 | 21.85 | 3.05 | 176 | .003 |
| CS+ type\*Group | 0.34 | 3.59 | -6.67 | 7.35 | 0.09 | 175 | .925 |
| CS+ type\*Subsample | -6.23 | 3.59 | -13.24 | 0.78 | -1.74 | 175 | .084 |
| Group\*Subsample | -13.66 | 8.74 | -30.72 | 3.40 | -1.56 | 176 | .120 |
| CS+ type\*Group\*Subsample | -0.75 | 7.18 | -14.77 | 13.27 | -0.1. | 175 | .917 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**CS+**U** = -0.5, CS+**E** = 0.5. **b** Control group = -0.5, hypnosis group = 0.5. **c** Remote subsample = -0.5, Laboratory subsample = 0.5

* + 1. **Intrusions and rumination**
			1. **IMQ: Intrusion index**

A LMM analysis including the fixed effects Group (hypnosis, control), Day (2, 3), Subsample (remote, laboratory), and their interactions and intrusion index as outcome variable was carried out. The analysis revealed no interaction effects of Subsample with Group (*p*s > .05). Introducing Subsample as fixed effect did not change the direction of results reported in the main text (see Table 44, for coefficients and test statistics).

**Table 43**

*Comparisons of fit indices in models on intrusion index (IMQ) including subsample as fixed effect*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | Day\*Group | Intercept | 1531.65 | 1570.31 | - | - | - | - |
| 2. | Day\*Group\*Subsample | Intercept, slope (Day) | 1532.34 | 1578.74 | 1 | 3.30 | 2 | .192 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects by subject.

**Table 44**

Coefficient table of fixed effects (final model) for intrusion index (IMQ) including subsample as fixed effect

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | -0.01 | 0.15 | -0.30 | 0.27 | -0.10 | 177 | .923 |
| Day**a** | -0.82 | 0.17 | -1.16 | -0.49 | -4.75 | 168 | <.001 |
| Group**b** | -0.12 | 0.29 | -0.69 | 0.45 | -0.41 | 177 | .682 |
| Subsample**c** | -0.42 | 0.29 | -1.00 | 0.14 | -1.46 | 177 | .146 |
| Day\*Group | -0.14 | 0.35 | -0.82 | 0.53 | -0.41 | 168 | .681 |
| Day\*Subsample | -0.11 | 0.35 | -0.79 | 0.56 | -0.33 | 168 | .744 |
| Group\*Subsample | -0.29 | 0.59 | -1.43 | 0.86 | -0.49 | 177 | .623 |
| Day\*Group\*Subsample | -0.43 | 0.69 | -1.79 | 0.92 | -0.62 | 168 | .536 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**Day 2 = -0.5, Day 3 = 0.5. **b** Control group = -0.5, hypnosis group = 0.5. **c** Remote subsample = -0.5, Laboratory subsample = 0.5.

* + - 1. **IMQ: Rumination index**

A LMM analysis including the fixed effects Group (hypnosis, control), Day (2, 3), Subsample (remote, laboratory), and their interactions and intrusion index as outcome variable was carried out. The analysis revealed a Day\*Subsample interaction effect, *b* = -0.90, 95% CI [-1.54, -0.27], *se* = 0.33, *t*(166) = ‑2.77, *p*= .006. Post-hoc tests indicated a stronger decline of the rumination index across days in the laboratory subsample compared to the remote subsample. No interaction effects of Subsample with Group were found (*p*s > .05). Introducing Subsample as fixed effect did not change the direction of results reported in the main text (see Table 46, for coefficients and test statistics).

**Table 45**

*Comparisons of fit indices in models on rumination index (IMQ) including subsample as fixed effect*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Model components | AIC | BIC | Compared  | Test statistics |
|  | Fixed | Random**a** |  |  | Model | *X*2change | *dfchange* | *p* |
| 1. | Day\*Group | Intercept | 1485.35 | 1523.90 | - | - | - | - |
| 2. | Day\*Group | Intercept, slope (Day) | 1471.95 | 1518.21 | 1 | 17.40 | 2 | <.001 |

Note. Asterisk indicates that interaction terms were included in the model. AIC = Akaike information criterion, BIC = Bayesian information criterion. **a** Random effects by subject.

**Table 46**

Coefficient table of fixed effects (final model) for rumination index (IMQ) including subsample as fixed effect

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 0.02 | 0.14 | -0.27 | 0.30 | 0.11 | 175 | .910 |
| Day**a** | -1.25 | 0.16 | -1.57 | -0.93 | -7.70 | 166 | <.001 |
| Group**b** | -0.21 | 0.29 | -0.78 | 0.34 | -0.74 | 175 | .460 |
| Subsample**c** | -0.19 | 0.29 | -0.76 | 0.37 | -0.66 | 175 | .512 |
| Day\*Group | -0.44 | 0.33 | -1.07 | 0.20 | -1.35 | 166 | .180 |
| Day\*Subsample | -0.90 | 0.33 | -1.54 | -0.27 | -2.77 | 166 | .006 |
| Group\*Subsample | -0.05 | 0.58 | -1.18 | 1.08 | -0.09 | 175 | .931 |
| Day\*Group\*Subsample | -0.28 | 0.65 | -1.55 | 0.99 | -0.44 | 166 | .664 |

*Note.* The coefficients derived from the final model (see comparisons of fit indices for model components). CI = confidence interval. **a**Day 2 = -0.5, Day 3 = 0.5. **b** Control group = -0.5, hypnosis group = 0.5. **c** Remote subsample = -0.5, laboratory subsample = 0.5.

* + - 1. **IPT: Intrusion index**

A linear regression analysis including the Group (hypnosis, control), Subsample (remote, laboratory), and their interactions as predictors and intrusion index as outcome variable was carried out. The analysis revealed no interaction effects of Subsample with Group (*p*s > .05). Introducing Subsample as fixed effect did not change the direction of results reported in the main text (see Table 47, for coefficients and test statistics).

**Table 47**

Coefficient table of fixed effects for intrusion index (IPT) including subsample as fixed effect

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fixed effects  | *b* | *se* | 95% CI | 95% CI | Test statistics |
|  |  |  | lower | upper | *t* | *df* | *p* |
| Constant | 0.03 | 0.16 | -0.29 | 0.35 | 0.20 | 170 | .840 |
| Group**a** | -0.17 | 0.32 | -0.81 | 0.47 | -0.52 | 170 | .601 |
| Subsample**b** | 0.23 | 0.32 | -0.41 | 0.88 | 0.72 | 170 | .471 |
| Group\*Subsample | 0.02 | 0.65 | -1.26 | 1.30 | 0.03 | 170 | .978 |

*Note.* The coefficients derived from a linear regression model. CI = confidence interval. **a**Control group = -0.5, hypnosis group = 0.5. **b** Remote subsample = -0.5, laboratory subsample = 0.5.