Supplemental Material

Table S1

Names and Descriptions of Stimulus Videos

Target Video	Target and Mismatch Video Description	Interference Video Description
Baseball	A teenaged baseball player hits the ball out of the park, achieving a home run (24 sec). Mismatch: Video ends while the batter is mid-swing (14 sec).	Footage from a professional baseball game in which an audience member catches a foul ball. (21 sec)
Breaking Ice	A young boy jumps on a frozen pool until he falls through the ice (38 sec). Mismatch: Video ends while the boy is jumping (29 sec).	A man breaks the surface of a frozen pool with a hammer and falls through the ice. (36 sec)
Bridge Jump	Four young men in a car accelerate and jump over a broken bridge in the woods (32 sec). Mismatch: Video ends as the car is about to leave the ground (25 sec).	Two business men in a car accelerate and jump the gap of a bridge over a river. (33 sec)
Coaster	Two adults ride a rollercoaster which gets stuck in the middle of a loop, leaving them hanging upside down (30 sec). Mismatch: Video ends as the rollercoaster begins to execute the loop (17 sec).	Two older adults talk before riding a short rollercoaster-esque ride suspended above a building. (28 sec)
Car Crash	A woman drives an unmarked police car, stops behind a taxi, and gets hit from the side by a large vehicle which is not shown (23 sec). Mismatch: Video ends just before impact (19 sec).	Four young girls in a car get hit from the front by a car driven by a man. (24 sec)
Concert	An orchestra sits in silence before beginning Beethoven's Fifth, conducted by a man in a tuxedo (24 sec). Mismatch: Video ends as the conductor raises his baton (17 sec).	A wind ensemble warms up and tunes in the absence of a director. (43 sec)
Dive	A young woman representing Canada in the 2016 Rio Olympics executes a dive (25 sec). Mismatch: Video ends as the diver begins to jump (16 sec).	Two young women representing Australia and China dive in the 2012 London Olympics. (32 sec)

Fire	Two men and a woman, casually dressed, experiment by pouring water on a grease fire in a parking lot (27 sec). Mismatch: Video ends as the water begins to pour (21 sec).	Two young men, dressed in lab coats, experiment by pouring water on a grease fire and show slow-motion footage of the explosion. (40 sec)
Horse	A jockey rides a brown horse in an indoor show-jumping competition, jumping over a tall brick wall (40 sec). Mismatch: Video ends as the horse begins to jump (26 sec).	A jockey rides a white horse in an outdoor show-jumping competition, jumping over a series of white fences. (33 sec)
Magic	A magician, who is not shown, transforms five one-dollar bills into hundred-dollar bills for an audience of two teenaged girls seated outside (42 sec). Video ends as the magician prepares to execute the trick (32 sec).	A young male magician, seated indoors at a table, performs a card trick for one young woman. (59 sec)
Race	An announcer introduces young men before they begin a one-mile race, competing in a small indoor stadium (30 sec). Mismatch: Video ends as the runners take their marks (26 sec).	Men compete in a relay race in an open-topped stadium with a race track surrounding a grassy field. (36 sec)
Rooftop Chase	An older man chases a younger man across flat rooftops. The younger man jumps to another building, and the older man attempts to follow but cannot pull himself up (39 sec). Mismatch: Video ends as the older man runs to jump from the rooftop (32 sec).	Two young men climb over peaked rooftops in a chase scene. The man running away has a bag, which he drops. (33 sec)
Skydive	Two people, clad in black skydiving suits, jump from a cargo plane and cut the ropes on large, free-falling crates of money (36 sec). Mismatch: Video ends as the skydivers prepare to cut the ropes (31 sec).	Five casually-dressed men skydive in a star formation, speaking to each other as they fall towards a body of water. Several of the men open their parachutes. (33 sec)
Sniper	In high-desert terrain, two seated men shoot a third man who is sitting on a rock alone (34 sec). Mismatch: Video ends as the sniper, looking through his scope, prepares to take the shot (28 sec).	Two camouflaged men lie down on a ridge covered in sagebrush, waiting to shoot a target driving a vehicle on a road below. (37 sec)

Space Shuttle	A white and orange space shuttle prepares to launch. An announcer counts down and the shuttle launches, accompanied by smoke and fire (33 sec). Mismatch: Video ends as the count-down ends (28 sec).	A space shuttle prepares to launch. The video shows spectators with cameras and the astronauts. There is a building with a NASA logo and American flag in the background. (31 sec)
Surprise Party	A young man, accompanied by two women, enters a dark apartment. He is surprised by his friends, who wear party hats (18 sec). Mismatch: Video ends as the man enters the room (10 sec).	A young man, led by one woman, enters a room in an office and is surprised with a cake and presents. He shakes hands with party-goers. (33 sec)
Train	A young man in the countryside stands atop an electrical box, watching as a train passes by. He jumps into an open cargo container, but somersaults through and falls out on the other side (42 sec). Mismatch: Video ends as the man prepares to jump (35 sec).	Two middle-aged men run across sandy terrain, carrying bags. One man jumps into a compartment of a moving cargo train, but closes the door before the second man can join him. (32 sec)

Table S2

Study 1: Videos Excluded From Analysis

		Match			Mismatch		
Participant #	Group	SM	Forgot	Knew	SM	Forgot	Knew
1	Experimental	X					
4	Control	X		X			
6	Control					X	
7	Experimental						XX
8	Control				X		
21	Experimental			X			X
22	Control			X			
24	Control		X				
28	Control			X			
29	Experimental		X			X	
36	Control	X				XX	
38	Control	XX					
47	Experimental					X	

Note: "SM" indicates a global source-monitoring failure such that the participant described only the interference video without integrating information from the target video, "Forgot" indicates that the participant could not recall anything when cued, and "Knew" indicates that the participant had seen the video prior to the experiment. A single X in a cell represents one excluded video and XX represents two videos.

Study 1 Additional Analyses

Control procedures (hours of sleep and MEQ). Average hours of sleep between the Day 1 and Day 2 sessions did not differ between the Control (M = 7.33, SD = 1.3) and Experimental (M = 7.4, SD = 1.22) groups, $t(46) = 0.17$, $p = .864$, 95% CI = [-0.669, 0.794]. Similarly, hours of sleep between the Day 2 and Day 3 sessions did not differ between the Control (M = 6.96, SD = 1.24) and Experimental (M = 7, SD = 1.13) groups, $t(44) = 0.054$, $p = .957$, 95% CI = [-0.685, 0.723]. Finally, Morningness-Eveningness Questionnaire (MEQ) scores did not differ between the Control (M = 45.9, SD = 8.95) and Experimental (M = 44.48, SD = 6.81) groups, $t(41) = 0.59$, $p = .558$, 95% CI = [-6.283, 3.44]. Overall, the between-subjects differences in intrusions and errors cannot be explained by sleep or circadian rhythm differences.

Non-parametric tests. Error variances differed between the Control and Experimental groups for mismatch-reactivated intrusion rates, $F(1,46) = 5.84$, $p = .02$, and for match-reactivated error rates, $F(1,46) = 9.27$, $p = .004$. Therefore, as the assumption of homogeneity of variance may have been violated, we conducted non-parametric tests to affirm the results from the parametric tests previously reported.

We conducted Mann-Whitney U Tests to assess between-subjects differences. The intrusion rate for match-reactivated videos was greater for the Experimental group (Median = 0.89) than for the Control group (Median = 0.56), $U = 145.5$, $p = .003$. Similarly, the intrusion rate for mismatch-reactivated videos was greater for the Experimental group (Median = 1.22) than for the Control group (Median = 0.56), $U = 86.5$, $p < .001$. The error rate for match-reactivated videos was greater for the Experimental group (Median = 1.33) than for the Control group (Median = 0.78), $U = 102.5$, $p < .001$. However, the error rate for mismatch-reactivated videos was numerically, but not statistically, greater for the Experimental group (Median = 1.33) than for the Control group (Median = 0.89), $U = 196.5$, $p = .06$.

To assess our within-subjects factor, reactivation type, we also conducted Related-Samples Wilcoxon Signed Rank Tests. Within the Experimental group, the intrusion rate was significantly higher for mismatch-reactivated videos (Median = 1.22) than for match-reactivated videos (Median = 0.89), $Z = 3.77$, $p < .001$. There was no difference between the error rates for mismatch-reactivated videos (Median = 1.33) and match-reactivated videos (Median = 1.33), $Z = -1.1$, $p = .271$. In the Control group, the intrusion rates did not differ between mismatch-reactivated videos (Median = 0.56) and match-reactivated videos (Median = 0.56), $Z = -0.61$, $p = .543$. The error rate was higher for mismatch-reactivated videos (Median = 0.89) than for match-reactivated videos (Median = 0.78), $Z = -2.09$, $p = .037$. Overall, all non-parametric test outcomes were consistent with those from the parametric tests reported.

Pilot Study

Nine participants (8 female, 1 male; age $M = 20.11$, $SD = 1.83$) completed an initial pilot version of the experiment. The sample was ethnically heterogeneous: 33.3% Caucasian, 33.3% East Asian, 22.2% South Asian, and 11.1% Middle Eastern. Based on their feedback, we modified the stimulus set to replace videos from movies and TV shows which some participants had seen prior to the study. Numerically, the

results from the pilot study were consistent with those from the final experiment, as depicted in Table S3 below. In particular, the striking between-subjects differences had already emerged. Note that overall, the scores for intrusions, errors, and correct details are higher in the final version of the study because we lengthened the interviews to obtain more detailed reports from our participants.

Table S3

Pilot Study: Descriptive Statistics by Group and Reactivation Type

	Control Group		Experimental Group	
	Mean	95% CI	Mean	95% CI
Intrusions, Match	0.22	[0.055, 0.39]	0.453	[0.303, 0.602]
Intrusions, Mismatch	0.23	[-0.103, 0.569]	0.475	[0.174, 0.776]
Errors, Match	0.14	[- 0.118, 0.395]	0.43	[0.198, 0.657]
Errors, Mismatch	0.32	[-0.148, 0.794]	0.64	[0.218, 1.06]
Correct Details, Match	8.53	[6.202, 10.853]	6.14	[4.064, 8.224]
Correct Details, Mismatch	7.91	[5.786, 10.04]	5.69	[3.786, 7.591]
Confidence, Match	3.61	[2.674, 4.548]	3.03	[2.187, 3.863]
Confidence, Mismatch	3.21	[2.755, 3.672]	3.08	[2.665, 3.485]

Table S4

Study 2 Descriptive Statistics: Video Ratings

	N	Valence (M, *SEM*)	Arousal (M, *SEM*)	Surprise (M, *SEM*)	Interfer. Valence (M, *SEM*)	Interfer. Arousal (M, *SEM*)	Similarity (M, *SEM*)
Baseball	19	4.05, *0.179*	3.37, *0.205*	3.84, *0.257*	4.05, *0.179*	3.79, *0.249*	3, *0.367*
Breaking Ice	24	3.67, *0.223*	3.21, *0.233*	3.83, *0.214*	3.17, *0.253*	3.29, *0.229*	4, *0.233*
Bridge Jump	19	3.47, *0.269*	3.26, *0.274*	3.47, *0.28*	3.79, *0.224*	3.16, *0.289*	3.26, *0.214*
Car Crash	21	2.48, *0.298*	3.43, *0.245*	3.43, *0.281*	2.19, *0.298*	3.52, *0.264*	2.76, *0.284*
Coaster	22	3.64, *0.233*	3.41, *0.182*	3.36, *0.312*	3.77, *0.271*	3.68, *0.222*	3.27, *0.23*
Concert	23	4.22, *0.125*	3.57, *0.164*	3.65, *0.256*	3, *0.154*	2.96, *0.231*	3.13, *0.238*
Dive	23	3.83, *0.162*	3.3, *0.239*	4.13, *0.192*	3.52, *0.176*	3.22, *0.198*	3.74, *0.253*
Fire	25	3.64, *0.162*	3.32, *0.243*	3.68, *0.25*	3.04, *0.158*	2.64, *0.23*	3.8, *0.208*
Graduation	21	4.43, *0.13*	3.71, *0.209*	3.24, *0.238*	4.29, *0.171*	3.76, *0.168*	4.1, *0.228*
Horse	21	3.52, *0.178*	2.76, *0.257*	3.9, *0.248*	3.62, *0.129*	2.33, *0.261*	4.1, *0.194*
Magic	24	4.13, *0.139*	3.79, *0.18*	3.71, *0.327*	3.5, *0.181*	3.63, *0.207*	3.42, *0.216*
Rooftop Chase	24	2.67, *0.187*	3.33, *0.206*	3.63, *0.215*	3.17, *0.177*	3.29, *0.213*	3.75, *0.193*
Skydive	21	3.29, *0.286*	3.38, *0.312*	3.76, *0.3*	3.76, *0.238*	3.67, *0.242*	3.14, *0.311*
Sniper	20	2.1, *0.25*	3.45, *0.211*	3.3, *0.272*	2.9, *0.216*	3.25, *0.204*	3.25, *0.331*
Space Shuttle	25	4.24, *0.145*	3.52, *0.201*	3.6, *0.224*	3.76, *0.133*	3.12, *0.247*	3.72, *0.22*
Race	27	3.37, *0.201*	3, *0.239*	3.67, *0.192*	3.59, *0.162*	3.11, *0.216*	3.96, *0.164*
Surprise Party	19	4.11, *0.228*	3.53, *0.28*	3.89, *0.275*	4.32, *0.23*	3.74, *0.227*	3.53, *0.246*
Train	25	3.07, *0.168*	3.15, *0.205*	3.84, *0.214*	3.15, *0.183*	2.96, *0.181*	2.59, *0.222*

Table S5

Study 2: Item Analysis Descriptive Statistics

	Control Group		Experimental Group	
Measure	Mean	Std. Dev.	Mean	Std. Dev.
Intrusions, Match	0.5	0.328	0.79	0.49
Errors, Match	0.83	0.45	1.52	0.607
Confidence, Match	3.52	0.27	12.87	3.035
Correct Details, Match	13.68	3.122	3.41	0.293
Intrusions, Mismatch	0.55	0.431	1.22	0.736
Errors, Mismatch	0.97	0.551	1.37	0.772
Confidence, Mismatch	3.45	0.38	12.96	3.055
Correct Details, Mismatch	13.21	3.438	3.39	0.313
Valence	3.55	0.645	3.55	0.645
Arousal	3.36	0.242	3.36	0.242
Surprise	3.66	0.234	3.66	0.234
Valence, Interference	3.48	0.53	3.48	0.53
Arousal, Interference	3.28	0.405	3.28	0.405
Similarity	3.47	0.454	3.47	0.454

Study 2 Excluded Participants

In total, we excluded data from 35 participants: 15 participants who completed the survey in under 80 seconds (impossible given the duration of the videos), 15 participants who responded to all questions with the same answer, four participants who provided responses that were statistical extreme outliers (e.g., rating a car crash as “very positive”), and one participant who was only 10 years old.

Table S6

Study 2: Correlations Between Video Ratings and Memory Measures

	Control Group							
	Match Videos				Mismatch Videos			
	Intrusions	Errors	Confidence	Correct	Intrusions	Errors	Confidence	Correct
Valence	0.308	-0.112	0.123	-0.168	0.249	-0.439	-0.021	-0.26
Arousal	-0.403	-0.118	0.231	-0.029	-0.165	-0.001	0.009	-0.074
Surprise	0.292	0.078	0.115	0.051	0.386	-0.348	-0.208	-0.191
Valence	0.371	-0.125	-0.16	-0.09	0.39	-0.344	-0.183	-0.228
Arousal	-0.158	-0.171	0.285	0.068	0.108	-0.073	-0.054	-0.1
Similarity	0.056	-0.079	0.014	-0.109	0.125	0.058	-0.178	-0.237
	Experimental Group							
	Match Videos				Mismatch Videos			
	Intrusions	Errors	Confidence	Correct	Intrusions	Errors	Confidence	Correct
Valence	-0.023	-0.286	-0.362	-0.317	0.276	-0.048	-0.372	-0.124
Arousal	**-.478***	-0.082	-0.027	0.175	-0.369	-0.13	-0.145	-0.138
Surprise	0.316	-0.181	-0.232	0.075	**.489***	-0.187	-0.106	0.057
Valence	-0.042	-0.125	-0.22	-0.338	0.24	0.108	-0.378	-0.339
Arousal	-0.396	-0.001	0.133	0.276	-0.221	-0.086	-0.166	-0.057
Similarity	0.201	-0.037	-0.336	-0.415	0.083	0.245	-0.163	-0.2

Note: * = $p < .05$

Table S7

Study 3: Videos Excluded From Analysis

Participant #	Group	Match			Mismatch		
		SM	Forgot	Knew	SM	Forgot	Knew
10	Control					X	
15	Experimental		X				
17	Experimental					XX	
21	Experimental			X			
23	Experimental			X	X		

Note: "SM" indicates a global source-monitoring failure such that the participant described only the interference video without integrating information from the target video, "Forgot" indicates that the participant could not recall anything when cued, and "Knew" indicates that the participant had seen the video prior to the experiment. A single X in a cell represents one excluded video and XX represents two videos.