Supplementary materials S1: GLM-ANOVA

Table S1: *Standard statistical GLM-ANOVA analysis. The right column indicates the adjusted statistics when the between subject factor of order was included in the model (results of this analysis are reported when the p-value is reduced in comparison to the standard statistical GLM-ANOVA). P-values are reported as when the corresponding F-value is larger than 1.*

RT = reward × caffeine × congruency					
Effect	*DFn*	*DFd*	*F*	*P*	*(statistics when including the between subject factor order)*
reward	1	25	41.5	< .001	
caffeine	1	25	4.8	0.037	F(1,24) = 6.4, p = 0.02
congruency	1	25	195.4	< .001	F(1,24) = 313, p < .001
reward × caffeine	1	25	<1	n.s.	
reward × congruency	1	25	<1	n.s.	
caffeine × congruency	1	25	1.2	0.28	
reward × caffeine × congruency	1	25	<1	n.s.	
CNV = reward × caffeine					
reward	1	25	10.0	0.004	
caffeine	1	25	1.6	0.22	
reward × caffeine	1	25	6.1	0.021	F(1,24) = 6.2, p = 0.02
$\boldsymbol{Alpha_{sustained}}$ ***= caffeine***					
caffeine	1	25	7.1	0.012	F(1,24) = 7.9, p = 0.01
$\boldsymbol{Alpha_{evoked}}$ ***= reward × caffeine***					
reward	1	25	13.1	0.001	
caffeine	1	25	11.0	0.003	F(1,24) = 13.7, p = 0.001
reward × caffeine	1	25	< 1	n.s.	
z = reward × caffeine × marker (CNV or Alpha)					
reward	1	25	14.9	< .001	
caffeine	1	25	15.4	< .001	F(1,24) = 17.5, p < .001
marker	1	25	0		
reward × caffeine	1	25	2.8	0.11	
reward × marker	1	25	1.5	0.23	
caffeine × marker	1	25	5.4	0.029	F(1,24) = 6.7, p = 0.016
reward × caffeine × marker	1	25	4.2	0.051	F(1,24) = 4.4, p = 0.048
$\boldsymbol{ROI_{fc[400\text{-}500]}}$ ***= reward × caffeine × congruency***					
reward	1	25	18.2	< .001	
caffeine	1	25	3.6	0.069*	
congruency	1	25	26.4	< .001	
reward × caffeine	1	25	1.2	0.28	
reward × congruency	1	25	<1	n.s.	
caffeine × congruency	1	25	<1	n.s.	
reward × caffeine × congruency	1	25	3.7	0.064	
$\mathbf{ROI_{p[700\text{-}800ms]}}$ ***= reward × caffeine × congruency***					
reward	1	25	6.4	0.018	F(1,24) = 6.9, p = 0.015
caffeine	1	25	1.8	0.20	
congruency	1	25	14.1	< .001	
reward × caffeine	1	25	5.0	0.034	F(1,24) = 6.0, p = 0.022
reward × congruency	1	25	<1	n.s.	
caffeine × congruency	1	25	1.7	0.21	
reward × caffeine × congruency	1	25	<1	n.s.	

** effect reached significance at p < 0.05 in the mixed model approach*

Supplementary materials S2: effect of order

Table S2: *Summarizing the effects of order (i.e. the addition of caf × session interaction to the model). AIC (Akaike information criterion) and BIC (Bayesian information criterion) values (lower values reflect a better model in terms of explaining variance while weighing the number of model parameters) show that was no clear indication of order effects in any of the measurements. Both AIC and BIC attempt to solve overfitting by penalizing the number of model parameters.*

Behavioral models	df	ΔAIC	ΔBIC
RT ~ reward × congruency × caf + session	20	-	-
RT ~ reward × congruency × caf + caf × session	21	+1	+10
Alpha sustained models			
Alpha Sustained ~ caf + session	8	-	-
Alpha Sustained ~ caf × session	9	+2	+10
Cue models			
CNV ~ reward × caf + session	13	-	-
CNV ~ reward × caf + caf × session	14	0	+8
Alpha Cue ~ reward × caf + session	13	-	-
Alpha Cue ~ reward × caf + caf × session	14	+2	+11
Target models			
$ROI_{fc[400\text{-}500]}$ ~ reward × congruency × caf + session	20	-	-
$ROI_{fc[400\text{-}500]}$ ~ reward × congruency × caf + caf × session	21	+10	+19
$ROI_{p[700\text{-}800ms]}$ ~ reward × congruency × caf + session	20	-	-
$ROI_{p[700\text{-}800ms]}$ ~ reward × congruency × caf + caf × session	21	+22	+30