

Virtual reality: physiological and behavioral mechanisms to increase individual pain tolerance limits

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1 Table

Table S1. The multi-level regressions with level 1 predictors, and the level 1 X level 2 cross-level interactions on changes in pain tolerance (°C).

^a To avoid multi-collinearity in the regression model, Level 1 variable enjoyable level was excluded from the regressions due to its high correlation with mood ($r = 0.774$, $p < 0.001$). For both models, sequence of

Predictor variables ^a	β	SE	t	p
Model 1: Level 1				
SDNN	-0.002	0.006	-0.367	0.445
AUC	0.035	0.134	0.259	0.796
VAS Pain Unpleasantness (PU)	-0.003	0.022	-0.131	0.896
VAS Mood	0.014	0.015	0.903	0.367
VAS Situational Anxiety	0.009	0.013	0.706	0.480
Model 2: Level 1 X Level 2 ^b				
SDNN X Conditions (VR Opera vs. VR Ocean)	-0.018	0.010	-1.792	0.073
SDNN X Conditions (Sham Ocean vs. VR Ocean)	-0.029	0.083	-3.468	0.001
SDNN X Conditions (Sham Opera vs. VR Ocean)	-0.351	0.082	-4.301	0.000
SDNN X Conditions (2-Back Task vs. VR Ocean)	-0.011	0.007	-1.487	0.137
AUC X Conditions (VR Opera vs. VR Ocean)	-0.001	0.001	-1.427	0.153
AUC X Conditions (Sham Ocean vs. VR Ocean)	-0.001	0.001	-0.738	0.460
AUC X Conditions (Sham Opera vs. VR Ocean)	-0.001	0.001	0.014	0.989
AUC X Conditions (2-Back Task vs. VR Ocean)	-0.001	0.001	-1.030	0.303
PU X Conditions (VR Opera vs. VR Ocean)	-0.008	0.038	-0.201	0.838
PU X Conditions (Sham Ocean vs. VR Ocean)	-0.034	0.044	-0.776	0.438
PU X Conditions (Sham Opera vs. VR Ocean)	-0.044	0.041	-1.081	0.280
PU X Conditions (2-Back Task vs. VR Ocean)	-0.113	0.037	-3.028	0.002
Mood X Conditions (VR Opera vs. VR Ocean)	0.005	0.031	0.174	0.861
Mood X Conditions (Sham Ocean vs. VR Ocean)	-0.068	0.036	-1.89	0.059
Mood X Conditions (Sham Opera vs. VR Ocean)	-0.023	0.038	-0.620	0.535
Mood X Conditions (2-Back Task vs. VR Ocean)	-0.044	0.034	-1.298	0.194
Anxiety X Conditions (VR Opera vs. VR Ocean)	0.030	0.037	0.802	0.423
Anxiety X Conditions (Sham Ocean vs. VR Ocean)	-0.013	0.042	-0.297	0.766
Anxiety X Conditions (Sham Opera vs. VR Ocean)	-0.019	0.045	-0.427	0.670
Anxiety X Conditions (2-Back Task vs. VR Ocean)	0.028	0.036	0.786	0.431

the 5 conditions was treated as a covariate.

^b The cross-level interaction effects were separated according to the target condition, the VR Ocean condition.

A cross-level interaction regression model to test the interaction among the five conditions (M) and SDNN, AUC, pain unpleasantness, mood, and situational anxiety (Xs) on the in pain tolerance limit delta (Y) was performed.