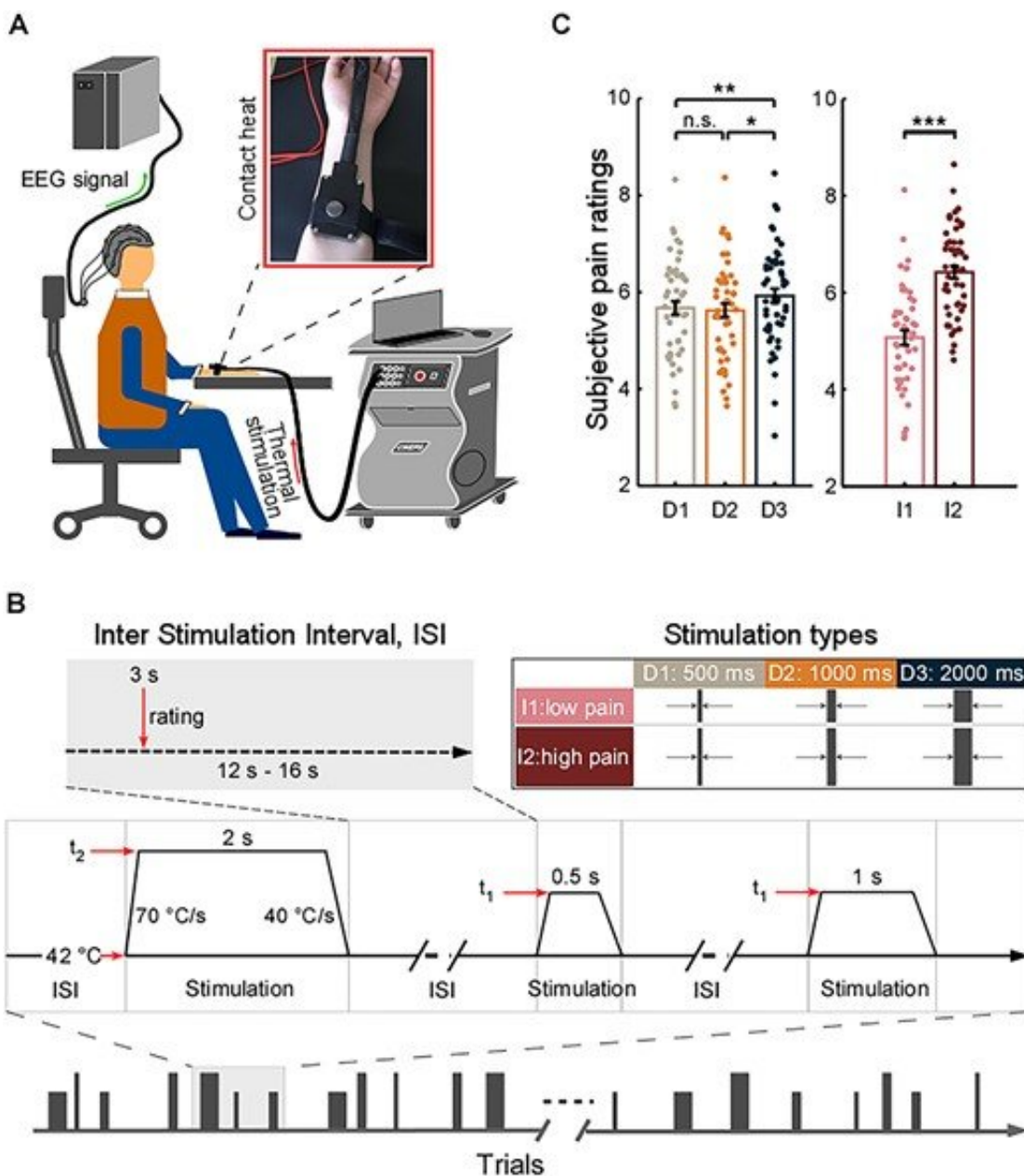


Neural responses mediate translation of sustained nociceptive inputs into subjective pain experience

March 24 2022, by Zhang Nannan



Experimental design and behavioral results. (A) Experimental setup. Participants were seated comfortably with their left forearm resting on a table in front of them. Cutaneous nociceptive afferents of the left volar forearm were stimulated using fast-rising contact heat (Peltier thermode, 27 mm diameter), while 64-channel EEG was simultaneously collected. (B) Experimental design. A total of 6 stimulation types (3 durations \times 2 intensities) were included in the experiment. Each contact heat stimulus consisted of 3 phases: A temperature increase from baseline (42°C) to target (t_1 or t_2), with a speed of 70°C/s ; a plateau of constant temperature lasting 500, 1,000, or 2,000 ms; and a temperature decrease from target to baseline, with a speed of 40°C/s . The target temperature (t_1 or t_2) was individually determined in a preliminary experiment to obtain a pain rating of 5 or 7 on a 0–10 NRS. Three seconds after each stimulus, subjects were instructed to rate the highest perceived pain on the same 0–10 NRS. The ISI varied randomly from 12 to 16 s. The 6 stimulus types were delivered pseudorandomly. (C) Behavioral results. Pain ratings for stimuli of different durations and intensities are shown in the left and right panels, respectively. Pain ratings elicited by contact heat of longer duration (i.e. D3) were higher than shorter durations (i.e. D1 and D2). Moreover, pain ratings elicited by contact heat of high intensity (i.e. I2) were higher than that of low intensity (i.e. I1). Error bars represent the standard error of the mean (SEM). *:
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