

## Supplementary material

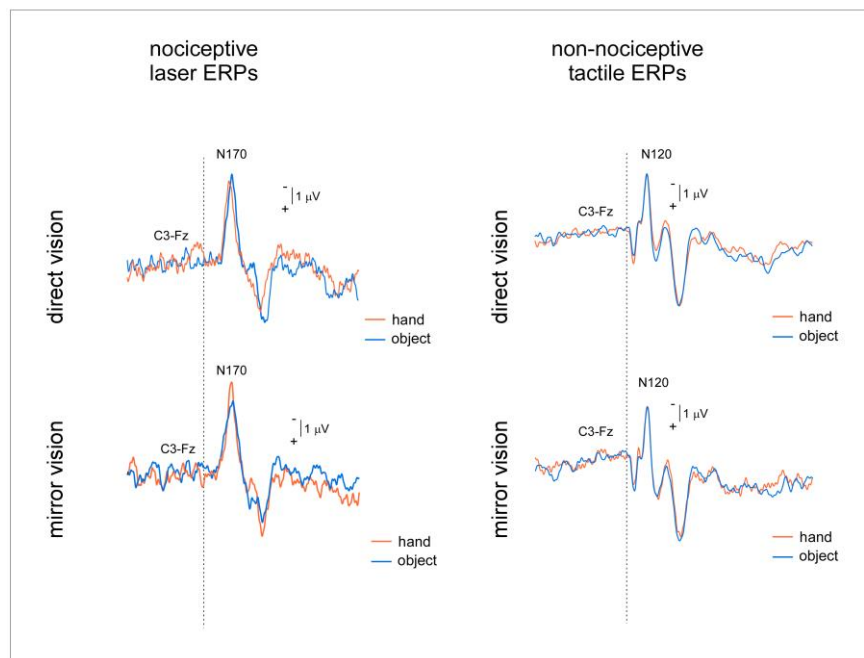


Figure S1. Group-level average waveforms of the nociceptive and non-nociceptive somatosensory ERPs recorded at the central electrode contralateral to the stimulated hand (electrode C3). The red waveforms correspond to the ERPs recorded during vision of the hand. The blue waveforms correspond to the ERPs recorded during vision of the object. The point-by-point repeated-measures ANOVA did not reveal any significant main effect of ‘vision’ (direct vs. mirror) or ‘content’ (hand vs. object). There was also no significant interaction between the two factors.

### Experiment 3

In experiments 1 and 2, when participants viewed directly the stimulated right hand, a glass panel was positioned at the sagittal midline to better match the condition of viewing the reflection of the left hand in the mirror. Therefore, one possible explanation for the lack of effect of viewing the hand on pain perception could have been an unaccounted effect of the interposed glass panel. Furthermore, in experiments 1 and 2, a crucial feature of the experimental setup was that we carefully avoided any possible confound related to vision of the stimulator and/or vision of the experimenter manipulating the stimulator. Therefore, it is possible that previously reported effects of viewing the hand on pain perception could have been related, at least in part, to vision of the laser stimulus or vision of the experimenter manipulating the laser stimulator.

To address these two questions, we conducted a third experiment in which we manipulated (1) the presence or absence of a visible spot indicating the position of the laser target on the stimulated hand and (2) the presence or absence of a glass panel positioned at the sagittal midline. Twelve healthy volunteers took part in this experiment (6 women; aged  $23.5 \pm 2.11$  years). The experiment consisted in six blocks, of 15 stimuli each. In the first two blocks (conditions 'viewing hand + stimulus'), participants looked at the stimulated hand. In addition, a visible He-Ne laser beam was switched on, coaxial with the CO<sub>2</sub> laser beam, producing a visible red spot at the location targeted by the nociceptive stimulus. In two other blocks (conditions 'viewing hand alone'), participants looked at the stimulated hand, but the visible He-Ne laser beam was switched off. Finally, in the last two blocks (conditions 'viewing object'), participants viewed an object instead of the stimulated hand. Each of these conditions was performed either with direct vision of the content, or direct vision of the content through an interposed glass panel ('glass' vs. 'no glass'). The glass panel was positioned the same way as in experiments 1 and 2 on the line of the body sagittal midline.

The order of the six blocks was counterbalanced across participants. The intensity of stimulation was individually adjusted such as to elicit a clear pinprick sensation, using the same method as in experiments 1 and 2. Such as in experiment 2, the laser beam diameter was 40 mm, and the laser pulse duration was 40 ms. Each condition was preceded by 60 seconds of passive looking at the hand or at the object. Three seconds after each stimulus, participants were asked to rate the painfulness and unpleasantness of the stimuli on a 0-100 scale, where 0 was defined as ‘no pain’ and 100 as ‘the worst imaginable pain’. These rating scales were identical to the ones used in (Longo, Iannetti, Mancini, Driver, & Haggard, 2012). In addition, possible changes in baseline skin temperature were assessed by measuring the temperature of the stimulated hand dorsum at the beginning and at the end of each block, using an infrared thermometer. At the end of the experiment, participants responded to a Likert questionnaire assessing how much they felt they were looking directly at the hand both in the ‘glass’ and ‘no glass’ conditions. Ratings ranged from -3 (strongly disagree) to +3 (strongly agree).

Data of the perceived painfulness and unpleasantness were analyzed using a 2-way repeated-measure ANOVA with the factors ‘content’ (three levels: ‘viewing hand + stimulus’, ‘viewing hand alone’ and ‘viewing object’) and ‘vision’ (‘glass’ vs. ‘no glass’). Our ANOVA model was justified by the fact that interactions between the two factors were possible: the interposed glass panel could have rendered the nociceptive stimulus less threatening, especially when the laser spot was visible. Furthermore, possible changes in baseline skin temperature were assessed using a 2-way repeated-measures ANOVA with the factors ‘block’ (six levels, corresponding to the six blocks), and ‘time’ (beginning vs. end of a stimulation block).

## Results

Average intensity of the laser stimulation was  $32.88 \pm 8.36$  mJ/mm<sup>2</sup>.

**Baseline skin temperature** The baseline temperature did not vary significantly across blocks (main effect of ‘block’:  $F(5,45)=0.569$   $p=0.724$   $\eta^2=0.059$ ), and did not vary significantly between the beginning and end of each block (main effect of ‘time’:  $F(1,9)=3.900$   $p=0.080$   $\eta^2=0.302$ ). There was also no significant interaction between the two factors ( $F(5,45)=0.772$   $p=0.575$   $\eta^2=0.079$ ). Of note, one subject showed a strong increase in temperature  $> 5$  degrees from the beginning to the end of the experimental session and was excluded from the analysis.

**Painfulness and unpleasantness of the sensation elicited by the nociceptive stimuli** The two-way repeated-measures ANOVA performed on ‘painfulness’ ratings showed no significant main effect of ‘vision’, no significant main effect of ‘content’ and no interaction between the two factors. Similarly, no significant effects of ‘vision’ and ‘content’ were observed for the ratings of ‘unpleasantness’. Results are summarized in Table S1 and Figure S2.

<b>Painfulness</b>			
	<b>F value</b>	<b>p-value</b>	<b>Partial eta square</b>
Vision	0.359	0.566	0.043
Content	1.202	0.326	0.131
Vision x Content	1.380	0.280	0.147
<b>Unpleasantness</b>			
	<b>F value</b>	<b>p-value</b>	<b>Partial eta square</b>
Vision	0.030	0.866	0.004
Content	2.250	0.156	0.219
Vision x Content	0.915	0.394	0.103

*Table S1. Repeated measure ANOVA assessing the effects of ‘content’ (three levels: ‘viewing hand + stimulus’, ‘viewing hand alone’, ‘viewing object’) and ‘vision’ (two levels: ‘glass’, ‘no glass’) on the ratings of painfulness and unpleasantness. The results did not evidence any significant source of variation attributable to ‘content’ and/or ‘vision’.*

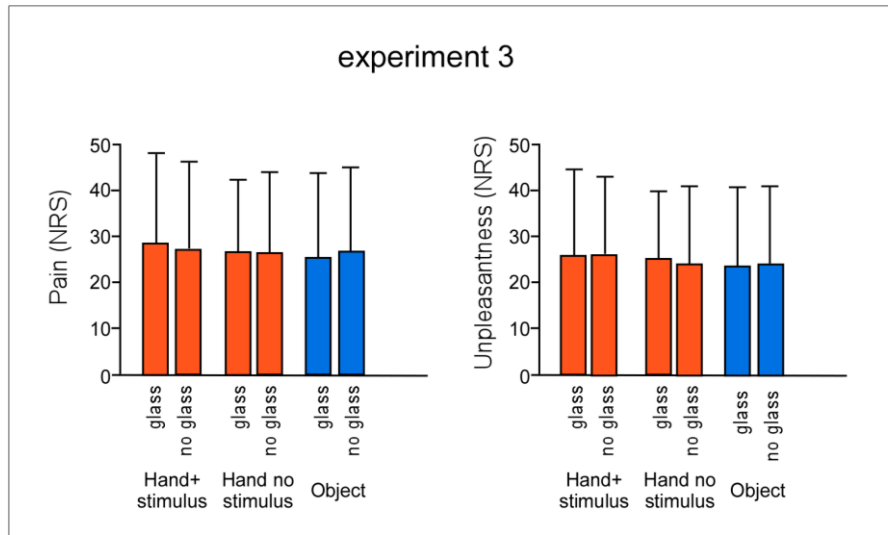


Figure S2. Group-level average ratings and standard deviation of the painfulness and unpleasantness of the sensation elicited by the nociceptive stimuli. Ratings were not affected by viewing the hand, viewing the hand and stimulus, or viewing the object. Furthermore, ratings were not affected by the presence of an interposed glass panel.

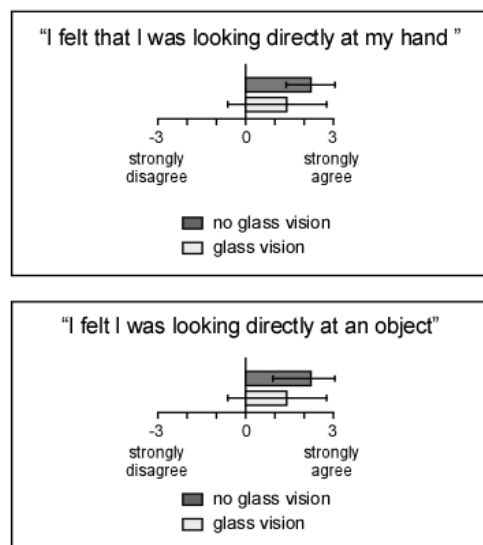


Figure S3. Looking at the hand or the object with or without the interposed glass did not exert a significant difference in the perception of the observed hand (hand  $p=0.066$ , object  $p=0.281$ ).

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