Supporting Information

Moseley *et al.* 10.1073/pnas.0803768105

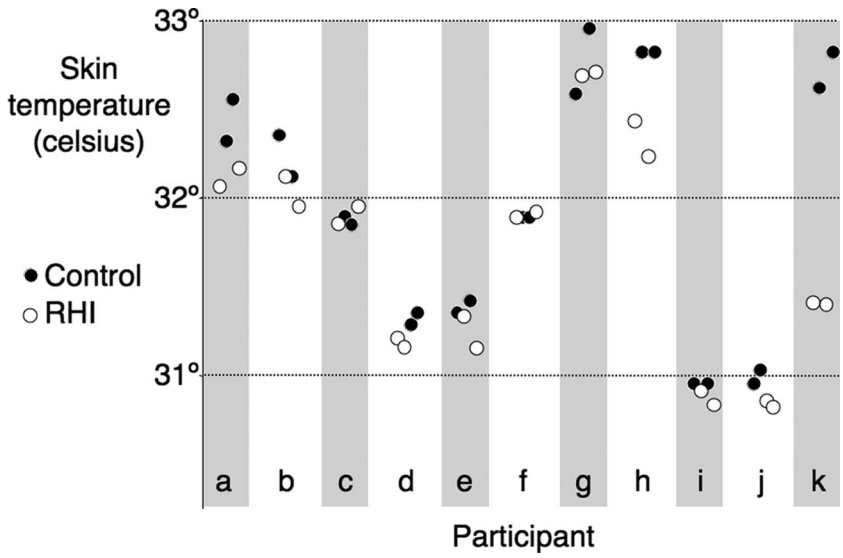

Fig. S1. Experiment 1 results. The order of trials and the mean skin temperature (°C) during both rubber hand illusion trials (RHI; open circles) and during both control trials (filled circles), for all participants. The order of presentation of the trials was randomized between participants. Note the variability in skin temperature between participants and between trials. Paired *t* tests undertaken on data from each individual participant were significant ($P < 0.05$) for participants a, b, d, e, h, i, j, and k, such that for those participants, mean temperature was less during RHI than during control.

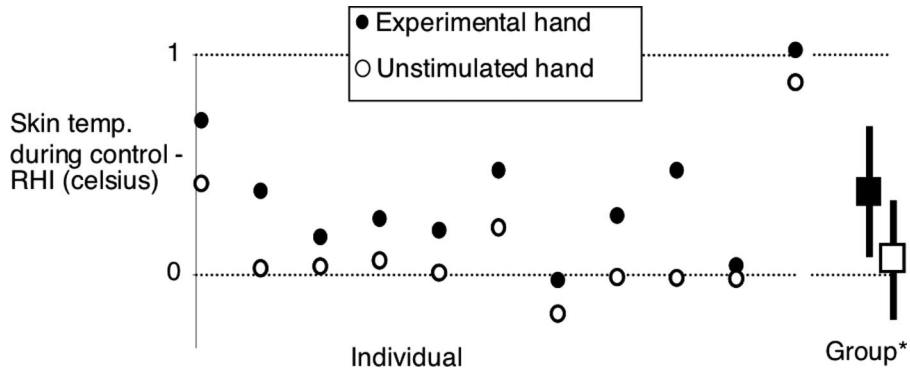

Fig. S2. Experiment 2 results. Change in skin temperature (control - rubber hand illusion, RHI; °C) for the experimental hand (filled circles) and the unstimulated hand (open circles) for all participants and the mean (squares) and standard deviation (error bars) of the group. *, significant (CONDITION × HAND interaction; $P = 0.02$).

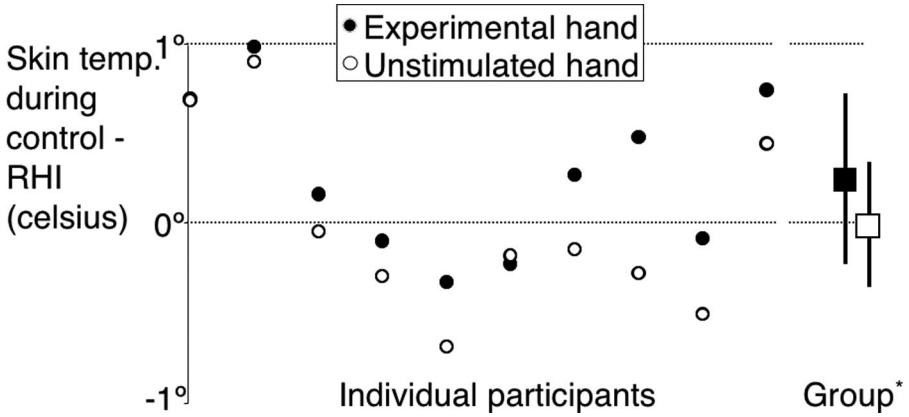

Fig. S3. Experiment 3 results. Change in skin temperature (control; rubber hand illusion, RHI; °C) for the experimental hand (filled circles) and the unstimulated hand (open circles) for all participants and the mean (squares) and standard deviation (error bars) of the group. *, significant (CONDITION × HAND interaction; $P = 0.02$).

Table S1. Clinical conditions characterized by body ownership and temperature regulation disturbances

Condition	Disruption of body ownership	Disruption of temperature regulation
Schizophrenia	Priebe *et al.* (1)	Chong *et al.* (2)
Neuropathic pain	Moseley (3)	Janig and Baron (4)
Post-stroke	Halligan *et al.* (5)	Riedl *et al.* (6)
Anorexia	Bruch *et al.* (7)	Lautenbacher *et al.* (8)
Bulimia nervosa	Slade *et al.* (9)	Papezova *et al.* (10)
Epilepsy	Boesebeck *et al.* (11)	Holtkamp *et al.* (12)
Autism	Rogers and Ozanof (13)	Satoshi (14)

1. Priebe S, Rohricht F (2001) Specific body image pathology in acute schizophrenia. *Psychiatry Res* 101:289–301.
2. Chong TWH, Castle DJ (2004) Layer upon layer: Thermoregulation in schizophrenia. *Schizophrenia Res* 69:149–157.
3. Moseley GL (2005) Distorted body image in complex regional pain syndrome. *Neurology* 65:773–773.
4. Janig Wl, Baron R (2003) Complex regional pain syndrome: Mystery explained? *Lancet Neurol* 2:687–697.
5. Halligan PW., Marshall JC, Wade DT (1993) Left on the right–Allochiria in a case of left visuospatial neglect. *J Neurol Neurosurg Psychiatry* 56:159–166.
6. Riedl B, Beckmann T, Neundorfer B, Handwerker HO, Birklein F (2001) Autonomic failure after stroke—Is it indicative for pathophysiology of complex regional pain syndrome? *Acta Neurol Scand* 103:27–34.
7. Bruch H (1962) Perceptual and conceptual disturbances in anorexia nervosa. *Psychosomat Med* 24:187–195.
8. Lautenbacher S, Paul AM, Strian F, Pirke KM, Krieg J.-C (1991) Pain sensitivity in anorexia nervosa and bulimia nervosa. *Biol Psychiatry* 29:1073–1078.
9. Slade P (1985) A review of body-image studies in anorexia nervosa and bulimia nervosa. *J Psychiatric Res* 19:255–265.
10. Papezova H, Yamamotova A, Uher R (2005) Elevated pain threshold in eating disorders: Physiological and psychological factors. *J Psychiatric Res* 39:431–438.
11. Boesebeck F, Ebner A (2004) Paroxysmal alien limb phenomena due to epileptic seizures and electrical cortical stimulation. *Neurology* 63:1725–1727.
12. Holtkamp M, Schmitt FC, Buchheim K, Meierkord H (2007) Temperature regulation is compromised in experimental limbic status epilepticus. *Brain Res* 1127:76–79.
13. Rogers SJ, Ozonoff S (2005) Annotation: What do we know about sensory dysfunction in autism? A critical review of the empirical evidence. *J Child Psychol Psychiatry* 46:1255–1268.
14. Satoshi T (2000) A thermographic study on the alteration of facial skin temperature in autistic patients by exercise loading. *J Kyorin Med Soc* 31:357–364.

Table S2. Outline of experiments, the main results, and their interpretation

Exp.	Manipulation	Result (mean ± SEM)	Interpretation
1	RHI vs. no stimulation control	• −0.27 ± 0.11° stimulated hand $P = 0.041$	• RHI is associated with reduction of skin temperature of the real hand.
2	RHI vs. stroking-only control	• −0.25 ± 0.09° stimulated hand $P = 0.017$ • 0.01 ± 0.09° (n.s.) unstimulated hand	• Temperature decrease is not a bodywide effect. • Temperature drop not due to stroking itself.
3	RHI vs. asynchronous stroking control	• −0.24 ± 0.13° stimulated hand $P = 0.020$ • 0.03 ± 0.15° (n.s.) unstimulated hand	• Temperature drop depends on visual and tactile input occurring synchronously rather than asynchronously.
1–3	Vividness of RHI related to the magnitude of temperature change	• $R = 0.50$, $P < 0.001$	• The more vivid the RHI, the bigger the drop in skin temperature.
4	RHI vs. no stimulation control	• −0.82 ± 0.21° $P = 0.001$ • −0.08 ± 0.12° (n.s.) ipsilateral foot	• Temperature decrease not observed in ipsilateral foot (i.e., effect is *limb*-specific.) • RHI precedes the decrease in skin temperature.
5	Synchronous visual and tactile input of stroking	• 0.02 ± 0.08° (n.s.)	• Temperature drop cannot be elicited simply by synchronous visual and tactile input to one hand.
6	TOJ during RHI vs. asynchronous stroking vs. no stimulation control	• PSS: 11 ± 1.2 ms during RHI $P < 0.001$ • 2.3 ± 2.2 ms during asynchronous (n.s.) • 1.6 ± 1.9 ms during control condition.	• Temperature drop not associated with shift of attention toward experimental side. • RHI reduces weight given to tactile stimuli *from* the real hand.
	Relate vividness to effect.	• Vividness related to PSS ($r = 0.64$, $P < 0.001$)	• The more vivid the illusion, the bigger the effect on tactile processing.

RHI, rubber hand illusion; Exp., Experiment.