

Supplementary information

Deactivation of the prefrontal cortex during exposure to pleasantly-charged emotional challenge

by

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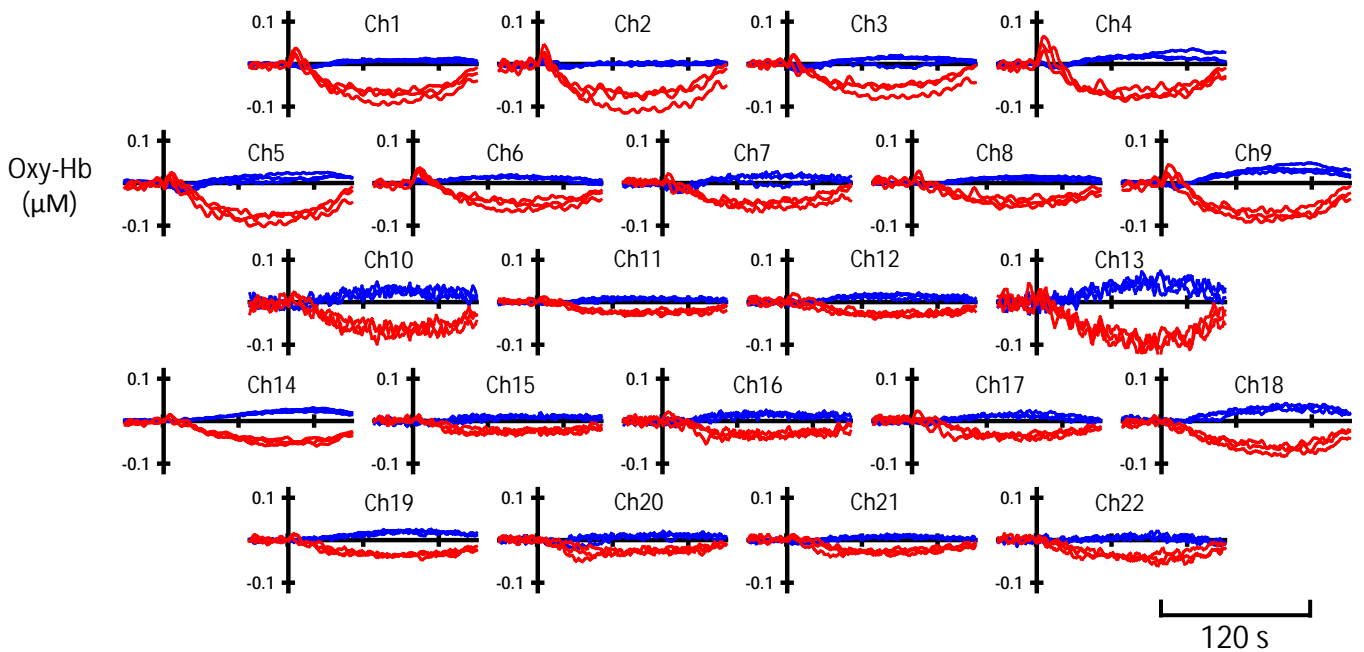
Legends of Supplementary Figures

Supplementary Figure S1 The dynamic changes in concentrations of prefrontal oxygenated-haemoglobin (Oxy-Hb, with red lines) and deoxygenated-haemoglobin (Deoxy-Hb, with blue lines) are represented over the 22 NIRS channels during emotionally-charged challenges in the same subject. The changes in prefrontal Oxy- and Deoxy-Hb are superimposed in three consecutive trials of each emotional intervention (comedy, landscape, and horror).

Supplementary Figure S2 The anatomical locations of all near-infrared spectroscopy (NIRS) probes, estimated by a three-dimensional digitizer, are summarised. BA, Brodmann's area. The anatomical brain region and BA corresponding to the location of a NIRS probe are suggested with their occurrence probability (mean \pm S. E. M.).

Supplementary Figure S1A

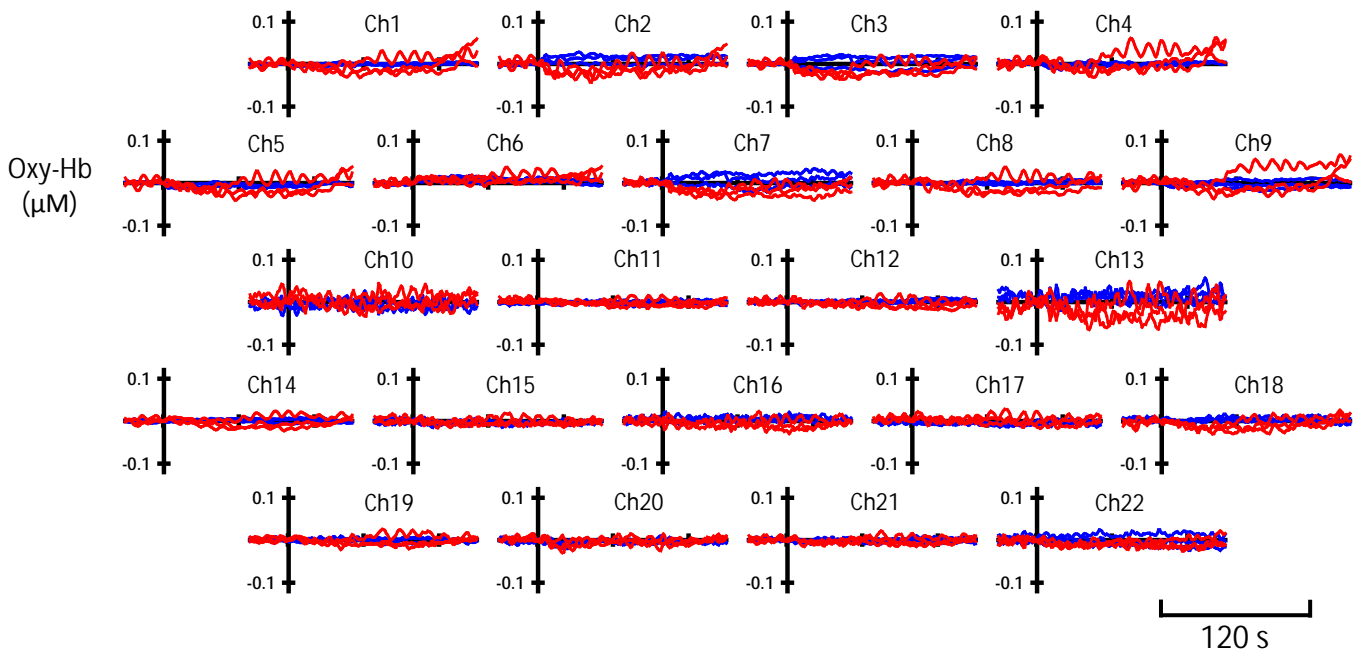
A. Comedy



The dynamic changes in concentrations of prefrontal oxygenated-haemoglobin (Oxy-Hb, with red lines) and deoxygenated-haemoglobin (Deoxy-Hb, with blue lines) are represented over the 22 NIRS channels during exposure to the comedy movie in the same subject. The changes in prefrontal Oxy- and Deoxy-Hb are superimposed in three consecutive trials of comedy stimulation.

Supplementary Figure S1B

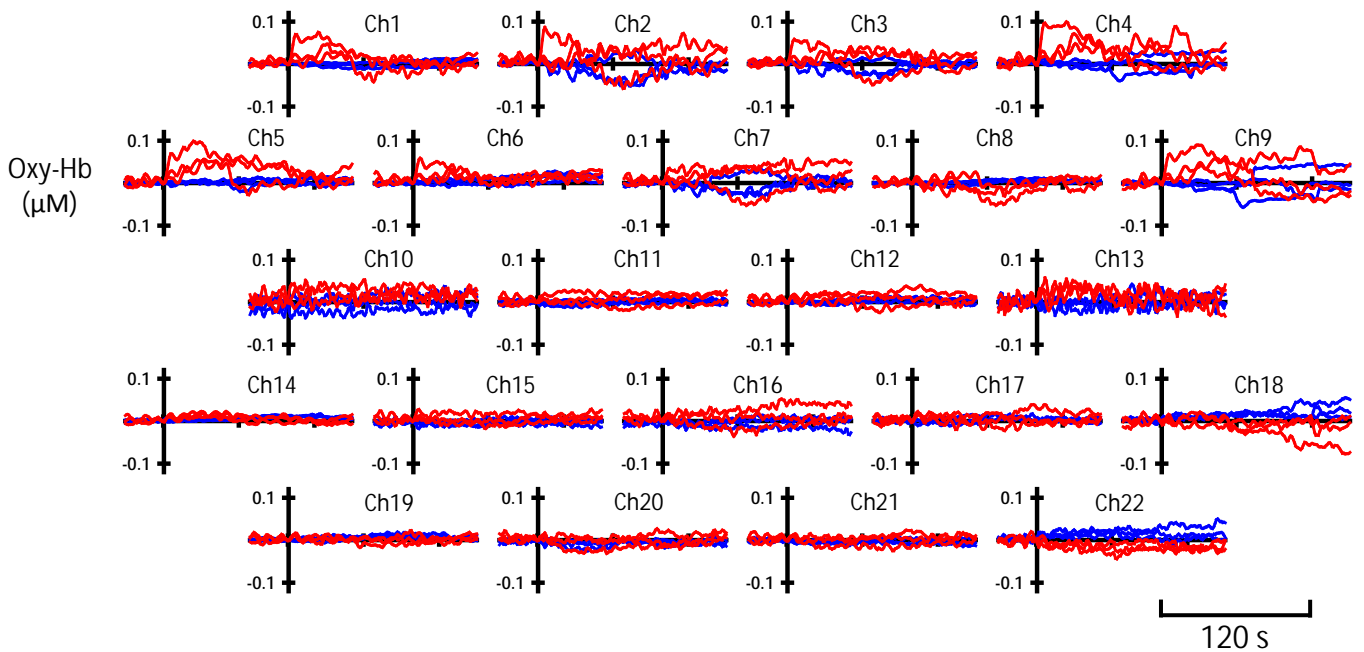
B. Landscape



The dynamic changes in concentrations of prefrontal oxygenated-haemoglobin (Oxy-Hb, with red lines) and deoxygenated-haemoglobin (Deoxy-Hb, with blue lines) are represented over the 22 NIRS channels during exposure to the landscape movie in the same subject. The changes in prefrontal Oxy- and Deoxy-Hb are superimposed in three consecutive trials of landscape stimulation.

Supplementary Figure S1C

C. Horror



The dynamic changes in concentrations of prefrontal oxygenated-haemoglobin (Oxy-Hb, with red lines) and deoxygenated-haemoglobin (Deoxy-Hb, with blue lines) are represented over the 22 NIRS channels during exposure to the horror movie in the same subject. The changes in prefrontal Oxy- and Deoxy-Hb are superimposed in three consecutive trials of horror stimulation.

Supplementary Figure S2

NIRS-Channels	Anatomical cortical region	BA area	Probability (%)
Ch1	Frontopolar area Orbitofrontal area	BA10 BA11	65 ± 5 21 ± 4
Ch2	Frontopolar area Orbitofrontal area	BA10 BA11	87 ± 6 13 ± 6
Ch3	Frontopolar area Orbitofrontal area	BA10 BA11	87 ± 5 13 ± 5
Ch4	Frontopolar area Orbitofrontal area	BA10 BA11	64 ± 6 26 ± 6
Ch5	Dorsolateral prefrontal cortex Frontopolar area pars triangularis Broca's area	BA46 BA10 BA45	64 ± 3 18 ± 5 17 ± 5
Ch6	Frontopolar area	BA10	88 ± 5
Ch7	Frontopolar area	BA10	95 ± 2
Ch8	Frontopolar area	BA10	86 ± 3
Ch9	Dorsolateral prefrontal cortex pars triangularis Broca's area	BA46 BA45	69 ± 4 25 ± 6
Ch10	Dorsolateral prefrontal cortex Frontopolar area	BA46 BA10	74 ± 4 16 ± 5
Ch11	Frontopolar area Dorsolateral prefrontal cortex	BA10 BA9	73 ± 8 26 ± 8
Ch12	Frontopolar area Dorsolateral prefrontal cortex	BA10 BA9	69 ± 9 23 ± 8
Ch13	Dorsolateral prefrontal cortex Frontopolar area pars triangularis Broca's area	BA46 BA10 BA45	69 ± 5 16 ± 6 13 ± 3
Ch14	pars triangularis Broca's area Dorsolateral prefrontal cortex	BA45 BA46	55 ± 8 38 ± 7
Ch15	Dorsolateral prefrontal cortex Dorsolateral prefrontal cortex Frontopolar area	BA9 BA46 BA10	63 ± 9 24 ± 8 14 ± 5
Ch16	Dorsolateral prefrontal cortex Frontopolar area	BA9 BA10	68 ± 6 29 ± 7
Ch17	Dorsolateral prefrontal cortex Dorsolateral prefrontal cortex Frontopolar area	BA9 BA46 BA10	52 ± 8 27 ± 5 21 ± 7
Ch18	pars triangularis Broca's area Dorsolateral prefrontal cortex	BA45 BA46	75 ± 5 22 ± 5
Ch19	Dorsolateral prefrontal cortex Dorsolateral prefrontal cortex	BA9 BA46	61 ± 8 30 ± 6
Ch20	Dorsolateral prefrontal cortex Includes Frontal eye fields	BA9 BA8	84 ± 6 15 ± 6
Ch21	Dorsolateral prefrontal cortex Includes Frontal eye fields	BA9 BA8	84 ± 6 15 ± 7
Ch22	Dorsolateral prefrontal cortex Dorsolateral prefrontal cortex	BA9 BA46	57 ± 6 35 ± 6

The anatomical locations of all near-infrared spectroscopy (NIRS) probes, estimated by a magnetic three-dimensional digitizer, are summarised. BA, Brodmann's area. The anatomical brain region and BA corresponding to the location of a NIRS probe are suggested with their occurrence probability (mean ± S. E. M.).