Table S6: Detailed study characteristics of studies excluded post-hoc

Seven articles comprising 11 sub-studies were excluded post-hoc due to poor study quality. These studies scored a high or unclear risk of bias or had high or unclear applicability concerns in more than 50% Quality Assessment of Diagnostic Accuracy Studies 2 (QUADAS-2) domains. Study characteristics are provided in Table S6.

Table S6: Study characteristics of post-hoc excluded studies.
ABP, arterial blood pressure; BOLD, blood-oxygen-level-dependent (signal); CBFv, cerebral blood flow velocity; cor, coronal; E/Extra, extracerebral; ECA, external carotid artery; fMRI, functional magnetic resonance spectroscopy; H, healthy participants; Hb, haemoglobin; HHb, deoxygenated Hb; I/intra, intracerebral; ICA, internal carotid artery; LDF, laser doppler flowmetry; m., muscle; N/A, not applicable; NIRS, near-infrared spectroscopy; OxyHb, oxygenated Hb; P, patients; Perf. mod, perfusion modification; Pop., population; SDS, source-detector separation; SE, supraorbital edge/ridge; TCD, transcranial doppler.
NIRS manufacturers: NIRO-500, Hamamatsu Photonics; INVOS 3100, INVOS 3100A, Somanetics; Frequency domain oximeter, ISS.

Author	NIRS-device	SDS (cm)	Sensor location	Pop.	n	Ref intra	Ref extra	I/E perf. mod.?	Perf. mod. performed	Perfusion modification description	Results
Zarei 2019 [77]	Custom made	3	L frontal pole (Fp1) and R frontal pole (Fp2)	H	6	N/A	N/A	E	Laser scalp blood flow stimulation	Scalp blood flow stimulation with 1550nm wavelength laser in middle Fz-Fpz (EEG 10-20) line. >3 cm away from NIRS optodes	No summary statistics described. Change upon SBFAP (scalp blood flow activation by photobiomodulation): - OxyHb (left): 0.6,0.6,1.1,1.2,0.6,0.8 μM → mean change 0.82 μM - OxyHb (right): 0.3,0.6,0.6,0.8,0.4,0.6 μM → mean change 0.55 μM - HHb (left) : -0.5,-0.6,-1.0,-0.1,-0.5,-0.1 μM → mean change -0.47 μM - HHb (right): -0.4,-0.5,-0.9,-0.5,-0.6,-0.2 μM → mean change -0.52 μM
Smielewski 1997 [78]	NIRO-500	6	Receiver 2 cm lateral to midline and 2 cm coronal to SE. Transmitter 6 cm toward hairline	P	69		LDF	E	Temporal artery compression	10 sec compressions of ipsilateral temporal artery	Ipsilateral: Change OxyHb of 1.85 μmol/L per 100% change in LDF (range, 0 to 4.9 μmol/L) Contralateral: Change OxyHb of 1.56 μmol/L per 100% change in LDF (range, 0 to 5.4 μmol/L)
Takeda 2000-1 [79]	INVOS 3100A	3.0 and 4.0	Bilateral on forehead more than 3 cm from midline	P	9	N/A	N/A	Intra	ICA balloon occlusion	Occlusion confirmed by contrast medium stasis	rSO_2: 67.4,74.0,56.6,78.8,NA,62.0,76.4,67.4,69.8 → mean 69.1% Change rSO_2 with balloon occlusion: -2.4, -2.4, -3.0, -4.2, NA, -4.2, -4.2, -0.6, -2.4 % (percentage point) → mean change -2.9 %
Steinbrink 2003 [80]	Custom made	?	Occipital lobes	H	10	TCD	LDF	No	No	Visual hemi-field stimulation with	No quantitative results: OxyHb: Increase in OxyHb in maximum amplitude pixels reached a maximum 12 s

									annular checkerboard at 8 Hz	after visual hemifield stimulus onset. 2.5 μM increase (estimated from graph) HHb: Decrease in HHb in maximum amplitude pixels reached a maximum 8 s after Vis Hemifield stimulus onset. 1.5 μM decrease (estimated from graph) TCD of posterior cerebral artery reached a maximum 6 s after after visual hemifield stimulus onset. No units. ~ 2 AU increase (estimated from graph) LDF: 'LDF measurements did not return a significant BV or BF effect (not shown)' ABP: 'no systemic change in aBP across subjects'
Toronov 2001 [81]	Frequency domain oximeter	3	Covering area around C3	H	6	fMRI	fMRI	No	No	Light palm squeezing with right hand for 10 20-sec epochs	fMRI BOLD signal highly correlated with paradigm boxcar function in primary motor cortex. Significant decrease of HHb during the palm squeezing in channels situated above primary motor cortex, Significant increase of OxyHb during the palm squeezing in channels situated above primary motor cortex, Rapid recovery toward the baseline level start 4-6 s after the onset of the rest epoch in OxyHb and HHb. No significant decrease in the folding average HHb traces concurrent with the significant OxyHb increase observed during stimulations in the light channels outside the activated area.
Duncan 1995-1 [82]	INVOS 3100	?	Forehead operated side	P	22	N/A	N/A	Extra	ECA clamping	2 min before ICA clamp	Shunt group (n=10) ECA-clamp vs baseline (med (range)): 67 (58-74) to 68 (56-72) %, N.S. No shunt group (n=12) ECA-clamp vs baseline (med (range)): 71 (63-83) to 70 (54-80) %, N.S.
Duncan 1995-2 [82]	INVOS 3100	?	Forehead operated side	P	22	N/A	N/A	Intra	ICA clamping	ICA clamp 2 min after ECA clamp	Shunt group (n=10) ICA-clamp vs ECA-clamp (med (range)): 68 (56-72) to 56 (46-65)%, p=0.05 No shunt group (n=12) ICA-clamp vs ECA-clamp (med (range)): 70 (54-80) to 64 (54-76)%, p=0.05
Lam 1997-1 [83]	NIRO-500	6	Forehead, avoiding temporal muscle and sagittal sinus	P	37	TCD	LDF	E	ECA clamping	ECA clamp 2 min before ICA clamp	Classified by authors as 'decreased', 'increased', 'no change'. LDF: 23 decrease OxyHb with 23 decrease LDF; 8 no change OxyHHb with 8 no change LDF 21 increase HHb, with 21 decrease LDF; 10 no change HHb, with 8 no change LDF, 2 decrease LDF TCD: 'Small reduction in CBFv (54 to 44 cm/s) in n=1 patient upon ECA clamping'
Lam 1997-2 [83]	NIRO-500	6	Forehead, avoiding temporal muscle and sagittal sinus	P	33	TCD	LDF	I	ICA clamping	ICA clamp 2 min after ECA clamp	LDF: For n=33 no change in LDF TCD: 18 decrease OxyHb, 18 decrease CBFv; 14 no change OxyHb, 9 decease CBFv, 5 no change CBFv 18 increase HHb, 18 decrease CBFv; 14 no change HHb, 9 decrease CBFv, 5 no change CBFv
Lam 1997-3 [83]	NIRO-500	6	Forehead, avoiding temporal muscle and sagittal sinus	P	26	TCD	LDF	E	ECA unclamping	ECA unclamping before ICA unclamping, unclear period	LDF: 17 increase OxyHb, 14 increase LDF, 3 no change LDF; 9 no change OxyHb, 9 no change LDF 15 decrease HHb, 12 increase LDF, 3 no change LDF; 11 no change HHb, 1 increase

											LDF,10 no change LDF TCD: n=2 increase CBFv (with increase LDF and OxyHb and decrease HHb)
Lam 1997-4 [83]	NIRO-500	6	Forehead, avoiding temporal muscle and sagittal sinus	P	36	TCD	LDF	I	ICA unclamping	ICA unclamping after ECA unclamping, unclear period	LDF: n=2 increase LDF (with increase CBFv) and OxyHb) TCD: 17 increase OxyHb, 17 increase CBFv; 19 no change OxyHb, 16 increase CBFv, 3 no change CBFv 16 decrease HHb, 16 increase CBFv; 18 no change HHb, 11 increase CBFv, 7 no change CBFv. N.B.2 increase HHb, 2 increase CBFv