

Appendix 1 to Meluken I, Ottesen N, Harmer C, et al. Neural response to emotional faces in monozygotic twins: association with familial risk of affective disorders. *J Psychiatry Neurosci* 2019.

DOI: 10.1503/jpn.170246

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Discordant twin pair analysis

There were no differences within discordant twin pairs ($n = 22$) in brain activity when processing emotional faces. Correlation analysis of the discordant twin pairs' brain activity within the significant clusters in MeFG and SFG revealed no correlation between age at illness onset or discordant time ($P_s \geq .15$). Exploring signal change differences between affected twins from concordant and affected twins from discordant pairs with a two-sample t-test revealed no differences (MPFC: $P = .61$; SFG: $P = .80$).

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Table S1. Behavioural performance of gender discrimination during fMRI, vigilance to and recognition of emotional faces in affected, high-risk and low-risk MZ twins*

	Affected twins	High-risk twins	Low-risk twins	Group	
	Mean (CI) (n = 61)	Mean (CI) (n = 37)	Mean (CI) (n = 29)	df	P
Gender discrimination					
Accuracy fear, % correct	97.4 (96.0-98.6)	98.5 (97.0-99.5)	96.8 (94.4-98.6)	2, 126 [2,	0.72
Accuracy happy, % correct	97.9 (96.6-98.9)	98.3 (96.8-99.4)	97.5 (95.4-99.0)	124]	[0.64]
Response time fear, ms	556.4 (530.0-584.3)	548.7 (514.8-584.9)	517.7 (455.5-588.5)	2, 126 [2,	0.81
Response time happy, ms	547.1 (517.5-578.4)	533.7 (496.0-574.2)	474.7 (403.5-558.4)	124]	[0.67]
Attentional vigilance [†]	(n = 55)	(n = 33)	(n = 27)		
Masked fear, ms	0.9 (-26.6-28.4)	-13.3 (-50.1-23.4)	-45.9 (-122.4-30.7)	2, 111	0.45
Unmasked fear, ms	20.1 (-1.6-41.8)	-15.8 (-44.1-12.5)	-5.8 (-37.4-25.7)	2, 111	0.12
Masked happy, ms	-22.3 (-45.4-0.7)	-58.5 (-88.5--28.5)	-29.5 (-62.8-3.8)	2, 111	0.18
Unmasked happy, ms	-2.1 (-29-24.8)	-23.9 (-59.8-12)	29 (-60.2-12.3)	2, 111	0.29
Discrimination accuracy [‡]	(n = 55)	(n = 33)	(n = 27)		
Angry	0.43 (0.4-0.47)	0.43 (0.39-0.47)	0.35 (0.26-0.45)	All six emotions	

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Disgusted	0.39 (0.35-0.44)	0.38 (0.32-0.44)	0.38 (0.31-0.45)	2, 570	0.78
Fearful	0.36 (0.32-0.4)	0.37 (0.31-0.43)	0.39 (0.32-0.45)	[10, 560]	[0.83]
Happy	0.52 (0.49-0.56)	0.56 (0.52-0.61)	0.53 (0.49-0.58)	Happy and fear	
Sad	0.42 (0.38-0.46)	0.45 (0.40-0.50)	0.42 (0.37-0.47)	2, 114	0.53
Surprised	0.48 (0.52-0.47)	0.47 (0.42-0.53)	0.38 (0.28-0.49)	[2, 112]	[0.60]
Recognition, correct hits	(n = 55)	(n = 33)	(n = 27)		
Angry, RT in ms	1448.3 (1313.6-1596.7)	1395.6 (1228.2-1585.8)	1428.7 (1223.3-1668.5)	All six emotions	
Disgusted, RT in ms	1655.0 (1478.9-1852.0)	1687.6 (1448.0-1966.9)	2356.8 (1674.7-3316.6)	2, 565	0.93
Fearful, RT in ms	1909.0 (1742.9-2090.9)	1963.9 (1739.8-2216.7)	2329.0 (1788.2-3033.6)	[10, 555]	[0.46]
Happy, RT in ms	1373.2 (1254.5-1503.1)	1244.8 (1103.1-1404.8)	1461.9 (1137.4-1878.8)	Happy and fear	
Sad, RT in ms	1630.2 (1478.4-1797.4)	1584.6 (1389.9-1806.5)	1915.8 (1444.7-2540.3)	2, 113	0.70
Surprised, RT in ms	1392.2 (1263.8-1533.5)	1535.5 (1347.9-1749.1)	1961.7 (1461.4-2633.2)	[2, 111]	[0.17]

*Gender discrimination data were lost for two participants due to response box malfunction; analysis included therefore 61 affected, 37 high-risk and 29 low-risk twins. Behavioural data for the faces dot-probe and facial expression recognition tasks were lost for 14 participants; analysis included therefore 55 affected, 33 high-risk and 27 low-risk twins

† Vigilance scores were calculated as response time latency to neutral faces versus emotional faces

‡ 1 reflects better than chance, 0 reflects same as chance and -1 reflects worse than chance

Abbreviations: MZ= Monozygotic, RT=Response Time, CI=Confidence Intervals

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Table S1. Variables from gender discrimination, the faces dot-probe task and facial expression recognition tasks are presented as estimated group means with confidence intervals by a mixed model procedure accounting for within twin-pair dependence. Group comparisons of affected (n = 62), high-risk (n = 38) and low-risk twins (n = 29) are reported with p-values and degrees of freedom from overall F tests. Subheadings in the test result column indicate within subjects factors in repeated measurements analysis.