SUPPLEMENTARY MATERIAL

Different mechanisms underlying emotional state reasoning in young and old adults: Evidence

from behavioral and neuroimaging data

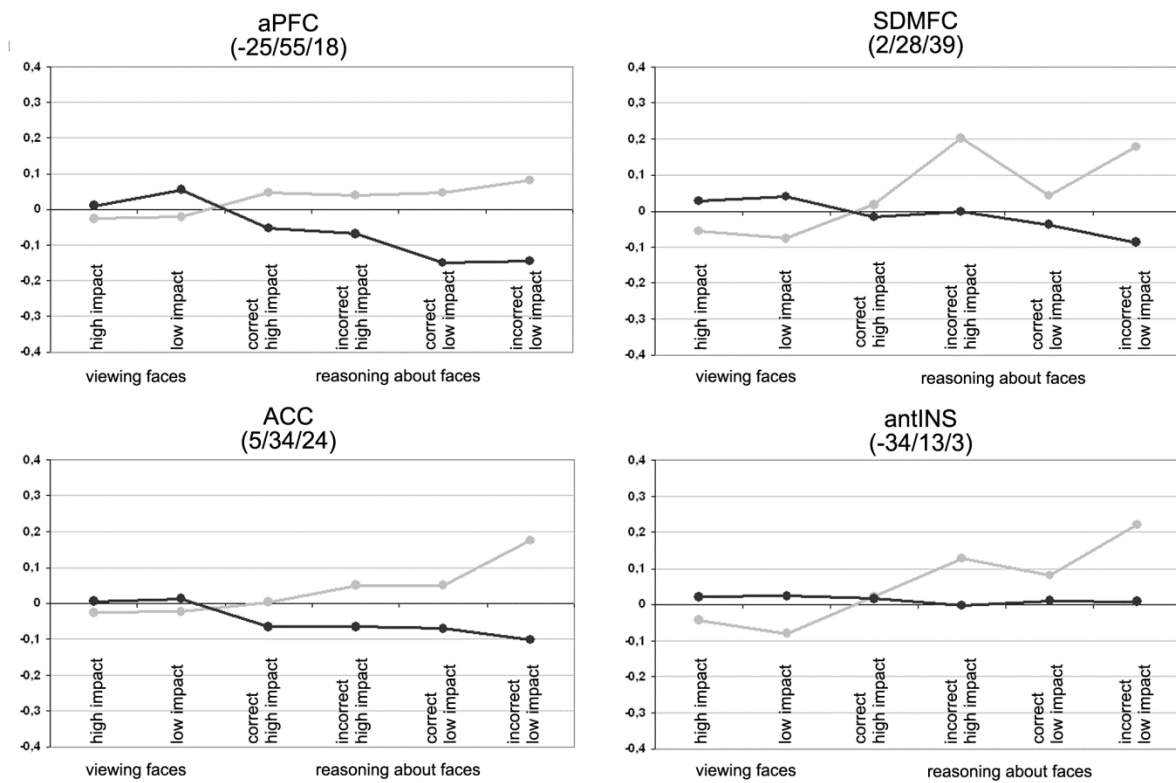Prochnow D, Steinhäuser L, Brunheim S, Seitz RJ

Fig. S1 Changes in percent signal change in different regions of interest at important events of interest; aPFC = anterior prefrontal cortex, SDMFC = superior dorsomedial frontal cortex, ACC = anterior cingulate cortex, antINS = anterior insula

Table S1 Regions activated during viewing the facial expressions which significantly correlated with the behavioral data

	aPFC 26/61/0	aPFC 23/58/9	aPFC -22/64/24	antINS 47/13/6	antINS -34/13/3	IFG 32/19/-15	SDMFC 2/28/39	TPJ 50/-41/12	IPL -52/-26/33
	Highly relevant	**Less relevant**	**Less relevant**	**Highly relevant**	**Less relevant**	**Highly relevant**	**Less relevant**	**Less relevant**	**Less relevant**
Total Reasoning	young: - old: -	young: - older: -	young: - **older: - r = -0.71**	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -
Highly relevant Reasoning	young: - older: -	young: - older: -	young: - older: r = -0.70	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -
Less relevant Reasoning	young: - older: -0.64	young: - older: -	young: - older: r = -0.63	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -
Alexithymia	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -
Self-reported Empathy	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -
Eyes Test	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -
Total Facial Affect Recognition	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: r = -0.62
Highly relevant Facial Affect Recognition	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -
Less relevant Facial Affect Recognition	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -

Note. Correlation coefficients were calculated only for regions that became activated during viewing the facial expressions (see top row) and separately for young and old adults. Correlation coefficients highlighted were statistically significant at $\alpha = 0.01$, the others at $\alpha = 0.05$. Where no correlation coefficient is given, no significant correlation was found.

Table S2 Regions activated during reasoning which significantly correlated with the behavioral data

	aPFC 32/52/18	aPFC -18/61/3	aPFC -25/55/18	aPFC -25/55/18	IFG -28/22/-15	SDMFC[1] 2/28/39	ACC 5/19/39	ACC[1] 5/34/24	ACC -4/16/39
	Incorrect less relevant	Incorrect highly relevant	Correct less relevant	Incorrect less relevant	Incorrect highly relevant	Incorrect less relevant	Incorrect highly relevant	Incorrect less relevant	Incorrect less relevant
Total Reasoning	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	**young: r = 0.85** older: -	young: r = 0.65 older: -	**young: r = 0.82** older: -
Highly relevant Reasoning	young: - older: -	young: - older: -	young: r = 0.55 older: -	young: - older: -	young: - older: -	young: - older: -	**young: r = 0.63** older: -	young: older: -	**young: r = 0.68** older: -
Less relevant Reasoning	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	**young: r = 0.74** older: -	**young: r = 0.67** older: -	young: r = 0.62 older: -
Alexithymia	young: - older: -	young: - older: -	young: - older: -	young: r = -0.56 older: -	young: r = 0.60 older: -	young: - older: -	young: - older: -	young: - older: -	young: r = -0.59 older: -
Self-reported Empathy	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: r = -0.60	young: - older: -	young: - older: r = -0.66	young: - older: -	young: - older: -
Eyes Test	young: - older: r = -0.69	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: r = -0.60	young: - older: -	young: - older: r = -0.66	young: - older: -
Total Facial Affect Recognition	young: - older: -	young: - older: r = -0.59	young: - older: -	young: - older: -	young: - older: r = -0.66	young: - older: -	young: r = 0.55 older: -	young: r = 0.57 older: -	young: - older: -
Highly relevant Facial Affect Recognition	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -
Less relevant Facial Affect Recognition	young: - older: -	young: r = -0.53 older: -	young: - older: -	young: - older: -	young: - older: -	young: - older: -	young: r = 0.60 older: -	young: - older: -	young: - older: -

Note. Correlation coefficients were calculated only for regions that became activated during reasoning about the emotional face expressions (see top row) and separately for young and old adults. Correlation coefficients highlighted were statistically significant at α = 0.01, the others at α = 0.05, Where no correlation coefficient is given, no

significant correlation was found.[1] These regions were only partially activated.