

Figure S1

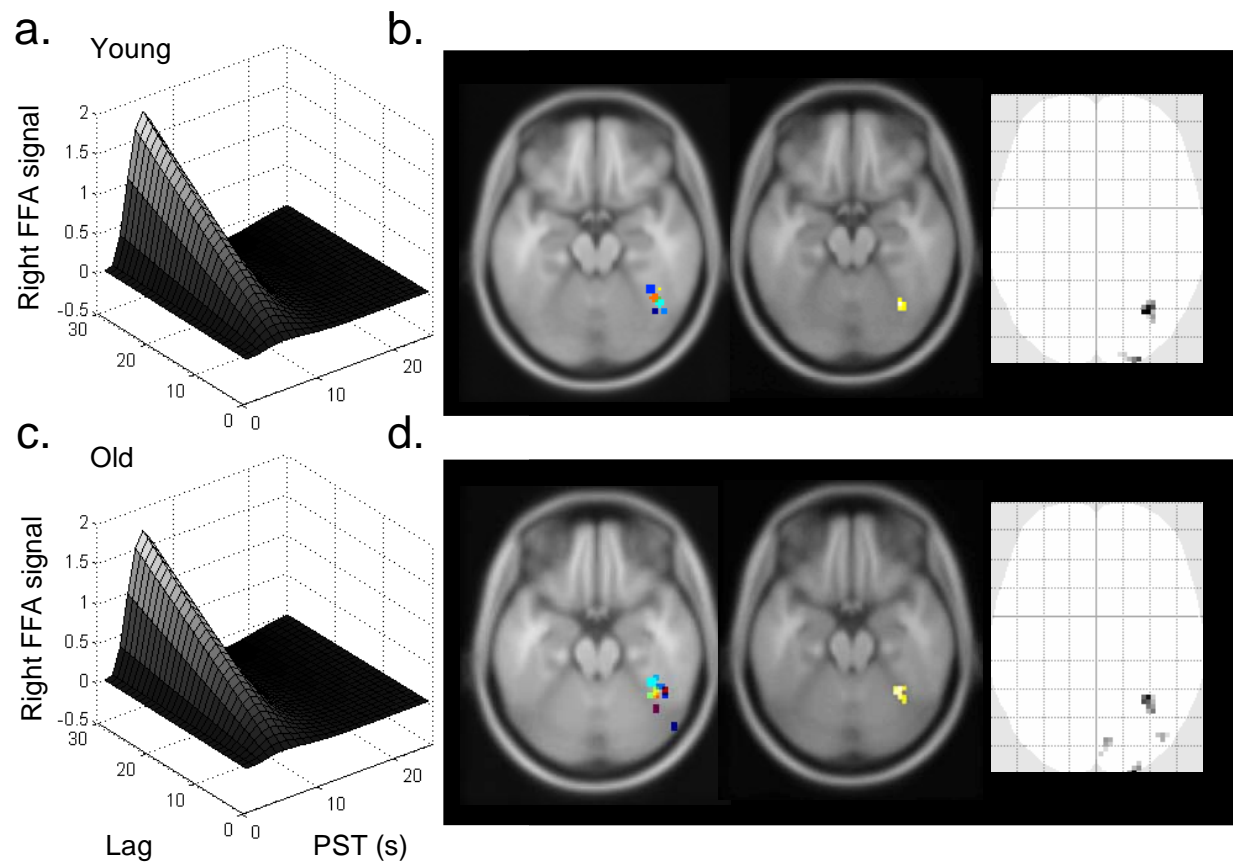


Figure S1. Repetition lag analysis. In both young [S1a.] and older adults [S1c.], the magnitude of FFA adaptation to repeated faces—repetition suppression—decreased with increasing lag between repetitions. An FFA mask was constructed from the random effects [face > place] contrast of each group's separate face/place localizer analysis and used for small volume FDR correction (Genovese et al., 2002),  $p < 0.05$ . Plots: Mean best fitting canonical event-related response to face exposures 2-5 in the right FFA, as a function of repetition lag ( $y$ -axis) and peristimulus time ( $x$ -axis); 24 second window displayed. In young [S1b.] and older adults [S1d.], left panels show locations of individual FFAs from the separate face/place localizer, for each age group, superimposed in different colors on a template brain in Montreal Neurological Institute (MNI) space. Middle panels: Significant effects of lag were detected in the FFA, for each age group, shown within the FFA mask. Clusters in the middle panels are displayed at the same axial slice as the left panels (Young:  $z = -18$ ; Old  $z = -21$ ). Right panels: Maximum intensity projections (axial viewpoint) of the same lag effects in the middle panel at the same threshold, but without a [Face > Place] mask, demonstrate the selectivity of the BOLD response to face repetition lag. Clusters exhibiting lag sensitivity were detected only within the right FFA and a few distributed clusters within primary visual cortex.

Table S1

## Parahippocampal place area (PPA) Regions of Interest (ROIs)

Young PPA				Old PPA			
ID	<i>x</i>	<i>y</i>	<i>z</i>	ID	<i>x</i>	<i>y</i>	<i>z</i>
y01	30	-45	-6	o01	24	-48	-15
y02	27	-51	-12	o02	24	-42	-18
y03	27	-48	-9	o03	27	-63	-15
y04	27	-51	-9	o04	27	-39	-12
y05	33	-45	-9	o05	27	-48	-18
y06	30	-48	-6	o06	24	-57	-12
y07	27	-57	-12	o07	24	-42	-12
y08	30	-48	-9	o08	27	-60	-6
y09	30	-57	-15	o09	30	-48	-12
y10	30	-63	-18	o10	21	-39	-12
y11	27	-45	-9	o11	27	-54	-9
y12	24	-39	-18	o12	30	-45	-9
y13	24	-45	-9	o13	24	-39	-15
y14	24	-45	-15	o14	24	-51	-9
Young PPA (experiment 1b)							
yc01	30	-51	-12				
yc02	30	-51	-6				
yc03	27	-60	-9				
yc04	24	-39	-18				
yc05	27	-39	-12				
yc06	30	-51	-6				
Average MNI: Young PPA				Average MNI: Old PPA			
	28	-49	-11		26	-48	-12

MNI = Montreal Neurological Institute brain atlas space

Table S2

## Fusiform Face Area (FFA) Regions of Interest (ROIs)

<b>Young FFA</b>				<b>Old FFA</b>			
<b>ID</b>	<b>x</b>	<b>y</b>	<b>z</b>	<b>ID</b>	<b>x</b>	<b>y</b>	<b>z</b>
y01	39	-63	-18	o01	51	-72	-18
y02	39	-39	-21	o02	39	-60	-21
y03	36	-48	-18	o03	42	-45	-18
y04	45	-63	-18	o04	39	-39	-21
y05	39	-66	-12	o05	36	-42	-21
y06	42	-57	-18	o06	39	-36	-27
y07	42	-72	-24	o07	36	-51	-18
y08	45	-54	-24	o08	39	-48	-18
y09	42	-48	-21	o09	42	-63	-15
y10	36	-42	-24	o10	39	-57	-12
y11	39	-54	-18	o11	39	-51	-21
y12	42	-54	-12	o12	39	-60	-18
y13	39	-42	-24	o13	45	-48	-18
y14	42	-51	-24	o14	39	-57	-15
<b>Young FFA (experiment 1b)</b>							
yc01	45	-63	-18				
yc02	45	-45	-21				
yc03	36	-75	-12				
yc04	39	-60	-15				
yc05	39	-63	-12				
yc06	39	-54	-12				
<b>Average MNI: Young FFA</b>				<b>Average MNI: Old FFA</b>			
	41	-56	-18		39	-51	-19

MNI = Montreal Neurological Institute brain atlas space

Table S3

## Whole brain analysis: Group X Repetition interaction

<i>F</i> -contrast Region	MNI coordinates			<i>t</i> -contrast ( $z_{\min}=2.57$ ; $p<0.005$ ; $k=10$ )	
	<i>X</i>	<i>Y</i>	<i>Z</i>	O > Y	O < Y
r. parahippocampal gyrus	30	-54	-3	0.00005	-
l. middle temporal pole	-48	12	-24	0.00008	-
r. inferior temporal gyrus	54	-60	-15	0.0001	-
	48	-12	-24	0.0001	-
l. inferior frontal junction	-39	36	39	0.0003*	-
l. superior temporal pole	-54	12	-9	0.0005	-
r. inferior frontal gyrus (pars orbitalis)	36	24	-12	-	0.00002
l. inferior frontal gyrus (pars orbitalis)	-48	27	-3	-	0.0004
cerebellar vermis	-3	-57	-12	-	0.0005
l. precentral sulcus	-30	9	45	-	0.0006

*F*-contrast: brain areas exhibiting a group X repetition interaction ( $p < 0.005$ , voxel extent > 10); *t*-contrast: O > Y = greater adaptation (repetition suppression) in old compared to young adults (uncorrected  $p$ -values for peak voxel); \* areas surviving a cluster-level FDR corrected  $p < 0.05$ .