

Supplementary Materials

Table S1 collected information about iron concentration and age in healthy people in different brain regions: Whole brain, Cortex, White matter, Putamen, Substantia Nigra, Red Nucleus, Thalamus, Globus Pallidus, Caudate Nucleus, Amygdala, Hippocampus, Dentate Nucleus. For each brain regions, we indicated the following details:

- Technique used for iron estimation (i.e., post-mortem analysis, in vivo MRI) and the relative parameters (i.e., T1, R2*)
- Number of patients and age range (years) of the population
- Quantitative information for the relation between estimated iron concentration and age (i.e., Pearson coefficient, interpolation, regression coefficient)

Brain region	Ref	Technique for iron estimation	N° of patients (N° of females)	Age range	Relation Iron vs Age
Whole	[1]	Post-mortem	42 dead (F=15)	53-101 years	$r^2=0.1534$ (NS)
Cortex	[2]	T1	17 healthy (F=8)	51-77 years	decreasing T1 rate in time= 5.1 ± 7.81 ms/year ($p = 0.039$) $r = -0.59$ ($p = 0.012$) relationship T1/iron

White matter	[2]	T1	17 healthy (F=8)	51-77 years	decreasing T1 rate in time $p = 0.38$
	[3]	R2*	140 healthy (F=81)	20-74 years	$r^2=0.37$
	[4]	T1, QSM	95 healthy (F=57)	21-58 years	$r^2=0.09$
Putamen	[5]	QSM	67 healthy (F=35)	18-78 years	$r=0.3780$ (Pearson) ($p=0.001$)
	[6]	R2*, QSM	498 healthy (F=286)	5-90 years	$R2^*(s-1)=0.58*Age-0.0008*Age^2+0.00004*Age^3+13.2$ $Susceptibility(ppb)=0.88*Age+0.002*Age^2+0.000055*Age^3-2.6$
	[7]	Post mortem	7 dead (F=4)	57-91 years	$r^2=0.17$ ($p=0.47$)

	[1]	Post mortem	42 dead (F=15)	53-101 years; 5 age groups	$r^2=0.151$ (NS)
	[3]	R2*	140 healthy (F=81)	20-74 years	$r^2>0.4$
	[8]	QSM	116 healthy (F=56)	20-79 years	$\rho^2=0.48$ ($p=6*10^{-18}$)
	[4]	T1, QSM	95 healthy (F=57)	21-58 years	$r^2=0.39$ ($p<0.001$)
	[9]	R2*	336 healthy (F=204)	38-86 years	Regression coefficient (beta= 2.55, 95% CI 1.12, 3.97, $p=0.01$)
	[10]	T2*, R2*	100 healthy (F=55)	20-70 years	beta=0.466 ($p<0.001$)
Substantia Nigra	[5]	QSM	67 healthy (F=35)	18-78 years	$r=0.0437$ (NS)

	[8]	QSM	116 healthy (F=56)	20-79 years	$\rho^2=0.21$ ($p=3*10^{-7}$)
	[4]	T1, QSM	95 healthy (F=57)	21-58 years	$r^2=0.17$ ($p<0.001$)
Red Nucleus	[5]	QSM	67 healthy (F=35)	18-78 years	$r=0.4840$ ($p<0.0001$)
	[8]	QSM	116 healthy (F=56)	20-79 years	$\rho^2=0.32$ ($p=3*10^{-11}$)
	[4]	T1, QSM	95 healthy (F=57)	21-58 years	$r^2=0.32$ ($p<0.001$)
Thalamus	[5]	QSM	67 healthy (F=35)	18-78 years	$r=0.0784$ (NS)
	[8]	QSM	116 healthy (F=56)	20-79 years	$\rho^2=0.05$ (NS)
	[7]	Post mortem	7 dead (F=4)	57-91 years	$r^2=0.14$ ($p=0.47$)

	[6]	R2*, QSM	498 healthy (F=286)	5-90 years	$R2^*(s-1)=1.17*Age-0.0008*Age^2+0.00004*Age^3+13.2$ $Susceptibility(ppb)=0.88*Age+0.002*Age^2+0.000055*Age^3-2.6$
	[4]	T1, QSM	95 healthy (F=57)	21-58 years	$r^2=0.06$ (NS)
	[10]	T2*, R2*	100 healthy (F=55)	20-70 years	$\beta=0.136$ ($p=0.050$)
Globus Pallidus	[5]	QSM	67 healthy (F=35)	18-78 years	$r=0.3186$ (NS)
	[8]	QSM	116 healthy (F=56)	20-79 years	$\rho^2=0.01$ (NS)

	[6]	R2*, QSM	498 healthy (F=286)	5-90 years	$R2^*(s-1)=0.32*Age-0.02*Age^2+0.00013*Age^3+18.1$ Susceptibility(ppb)= $4.39*Age-0.09*Age^2+0.0006*Age^3-45.3$
	[1]	Post mortem	42 dead (F=15)	53-101 years; 5 age groups	$r^2=0.078$ (NS)
	[4]	T1, QSM	95 healthy (F=57)	21-58 years	$r^2=0.16$ (p=0.22)
	[10]	T2*, R2*	100 healthy (F=55)	20-70 years	beta=0.281 (p=0.005)
Caudate Nucleus	[5]	QSM	67 healthy (F=35)	18-78 years	r=0.0474 (NS)
	[8]	QSM	116 healthy (F=56)	20-79 years	$\rho^2=0.23$ (p=7*10 ⁻⁸)

	[6]	R2*, QSM	498 healthy (F=286)	5-90 years	$R2^*(s-1)=0.43*Age-0.007*Age^2+0.00004*Age^3+13.7$ Susceptibility(ppb)= $1.85*Age-0.03*Age^2+0.0002*Age^3+2$
	[11]	T2*	113 Healthy (F=76)	19-83 years	-0.54 (p<0.05)
	[1]	Post mortem	42 dead (F=15)	53-101 years; 5 age groups	r ² =0.0094 (NS)
	[3]	R2*	140 healthy (F=81)	20-74 years	r ² >0.4
	[4]	T1, QSM	95 healthy (F=57)	21-58 years	r ² =0.18 (p<0.001)
	[10]	T2*, R2*	100 healthy (F=55)	20-70 years	beta=0.1395 (p<0.001)

Amygdala	[5]	QSM	67 healthy (F=35)	18-78 years	$r=0.2538$ (NS)
	[8]	QSM	116 healthy (F=56)	20-79 years	$\rho^2=0.01$ (NS)
	[10]	T2*, R2*	100 healthy (F=55)	20-70 years	$\beta=0.251$ ($p=0.015$)
Hippocampus	[5]	QSM	67 healthy (F=35)	18-78 years	$r=0.0300$ (NS)
	[8]	QSM	116 healthy (F=56)	20-79 years	$\rho^2=0.03$ (NS)
	([11])	T2*	113 Healthy (F=76)	19-83 years	-0.62 ($p>0.05$)
	[10]	T2*, R2*	100 healthy (F=55)	20-70 years	$\beta=0.367$ ($p=0.004$)
Dentate Nucleus	[5]	QSM	67 healthy (F=35)	18-78 years	$r=0.2170$ (NS)

	[8]	QSM	116 healthy (F=56)	20-79 years	$\rho^2=0.14$ ($p=5*10^{-5}$)
	[4]	T1, QSM	95 healthy (F=57)	21-58 years	$r^2=0.08$

F: Female; QSM: Quantitative Susceptibility Mapping

Beta: regression coefficient; r^2 : Correlation Coefficient , Pearson, NS: Not Significant

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