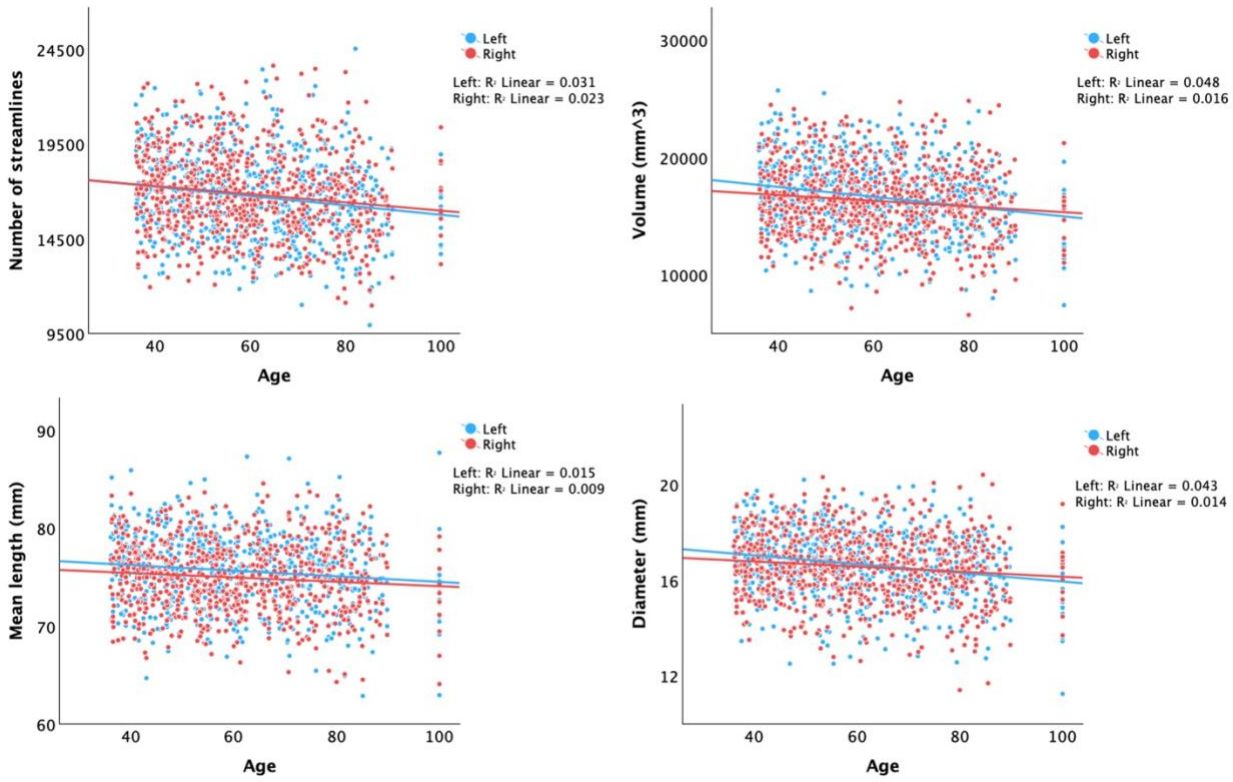
Supplementary Table 1. Partial correlations of age with FAT parameters controlling for sex and ICV.

	Left FAT		Right FAT	
	Correlation Coefficient	P value	Correlation Coefficient	P value
Number of streamlines	-0.108	**0.004***	-0.078	**0.037***
Volume (mm^3)	-0.176	**<0.001***	-0.076	**0.042***
Length (mm)	-0.009	0.807	0.013	0.734
Diameter (mm)	-0.180	**<0.001***	-0.090	**0.016***
FA	-0.298	**<0.001***	-0.300	**<0.001***
MD	0.485	**<0.001***	0.502	**<0.001***
AD	0.460	**<0.001***	0.485	**<0.001***
RD	0.453	**<0.001***	0.466	**<0.001***

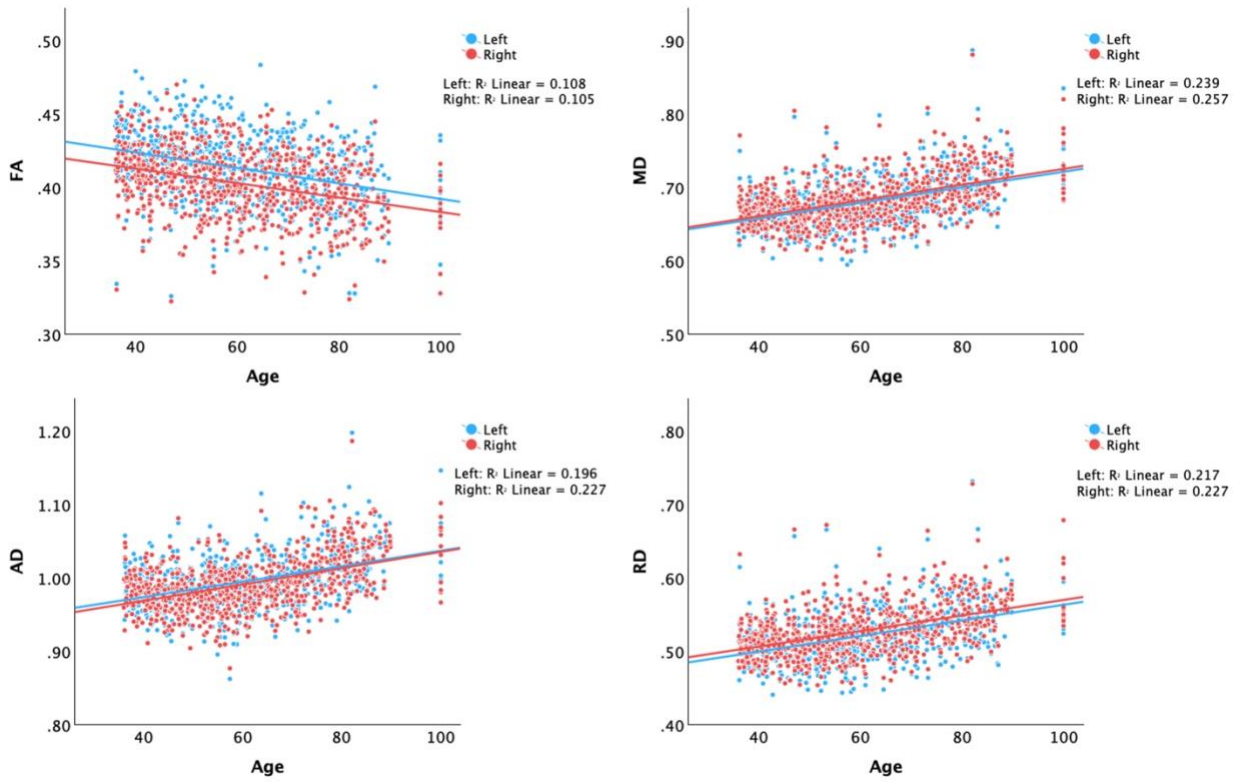
Numbers in bold indicate statistically significant results.

*Significant p value after FDR correction for multiple comparisons.

FA: Fractional Anisotropy, MD: Mean diffusivity AD: Axial diffusivity RD: Radial diffusivity.



Supplementary Figure 1. Age-related changes in macrostructural properties of FAT. The number of streamlines, volume, and diameter significantly decrease with age in both the left and right FAT.



Supplementary Figure 2. Age-related changes in microstructural integrity of FAT. FA values demonstrate a decrease, while diffusivity values (MD, AD, and RD) show an increase with aging.

Supplementary Table 2. Partial correlations of EHI scores with FAT parameters' laterality indexes controlling for age, sex, and ICV.

Laterality index	EHI Scores	
	Correlation Coefficient	P value
Number of streamlines	-0.020	0.592
Volume	-0.122	**0.001***
Length	-0.024	0.519
Diameter	-0.122	**0.001***
FA	-0.026	0.481
MD	-0.12	0.738
AD	-0.032	0.393
RD	0.004	0.908

Numbers in bold indicate statistically significant results.

*Significant p value after FDR correction for multiple comparisons.

FA: Fractional Anisotropy, MD: Mean diffusivity AD: Axial diffusivity RD: Radial diffusivity.