SUPPLEMENTAL MATERIAL

Data S1.

Supplemental Results: Comparing changes in carotid tortuosity from a time series analysis.

We performed the one-way ANOVA test to compare the effect of time on change in cervical carotid tortuosity for our three variables: tortuosity index, total absolute curvature, and RMS curvature.

A one-way ANOVA indicated that there is a significant difference in change in tortuosity index between the different groups ($F(5,94)=2.52$, $p=0.034$). Although the ANOVA test identified that the means are not statistically equal, the post-hoc Tukey's HSD test for multiple comparisons do not show enough evidence for a statistical difference between any pair of groups (**Table S1**). It is possible that a combined mean of more than one group differs significantly from the mean of one group or from the mean of other combined mean.

A one-way ANOVA indicated that there is a significant difference in change in total absolute curvature between the different groups ($F(5,94)=2.34$, $p=0.047$). Although the ANOVA test identified that the means are not statistically equal, the post-hoc Tukey's HSD test for multiple comparisons do not show enough evidence for a statistical difference between any pair of groups (**Table S2**). It is possible that a combined mean of more than one group differs significantly from the mean of one group or from the mean of other combined mean.

A one-way ANOVA indicated that there is not a significant difference in change in RMS curvature between the different groups ($F_{(5,94)}=1.99$, $p=0.087$). There is no significant difference between the means of any pair of groups (**Table S3**).

Table S1. Tukey's post-hoc multiple comparisons table for change in tortuosity index.

Group1	Group2	Mean difference	Q	95% CI		p-value
				Lower limit	Upper limit	
Baseline	0-24 months	0.068	0.418	-0.600	0.735	1.000
Baseline	24-48 months	0.477	3.433	-0.095	1.049	0.158
Baseline	48-72 months	0.272	2.052	-0.273	0.817	0.696
Baseline	72-96 months	0.642	3.715	-0.069	1.352	0.101
Baseline	96-120 months	0.302	1.748	-0.409	1.013	0.818
0-24 months	24-48 months	0.545	3.251	-0.145	1.234	0.205
0-24 months	48-72 months	0.340	2.093	-0.328	1.007	0.678
0-24 months	72-96 months	0.710	3.611	-0.099	1.518	0.120
0-24 months	96-120 months	0.370	1.882	-0.439	1.178	0.767
24-48 months	48-72 months	0.205	1.476	-0.367	0.777	0.902

24-48 months	72-96 months	0.165	0.927	-0.567	0.896	0.986
24-48 months	96-120 months	0.175	0.984	-0.556	0.906	0.982
48-72 months	72-96 months	0.370	2.141	-0.341	1.081	0.656
48-72 months	96-120 months	0.030	0.175	-0.681	0.741	1.000
72-96 months	96-120 months	0.340	1.655	-0.505	1.184	0.850

Table S2. Tukey's post-hoc multiple comparisons table for change in total absolute curvature.

Group1	Group2	Mean difference	Q	95% CI		p-value
				Lower limit	Upper limit	
Baseline	0-24 months	0.029	0.551	-0.187	0.245	0.999
Baseline	24-48 months	0.115	2.565	-0.07	0.300	0.462
Baseline	48-72 months	0.045	1.056	-0.131	0.222	0.975
Baseline	72-96 months	0.221	3.954	-0.009	0.451	0.067
Baseline	96-120 months	0.026	0.461	-0.204	0.256	1.000
0-24 months	24-48 months	0.144	2.659	-0.079	0.368	0.421
0-24 months	48-72 months	0.074	1.413	-0.142	0.290	0.917
0-24 months	72-96 months	0.250	3.930	-0.012	0.512	0.070
0-24 months	96-120 months	0.055	0.860	-0.207	0.316	0.990

24-48 months	48-72 months	0.070	1.558	-0.115	0.255	0.880
24-48 months	72-96 months	0.106	1.838	-0.131	0.343	0.785
24-48 months	96-120 months	0.090	1.556	-0.147	0.326	0.880
48-72 months	72-96 months	0.176	3.144	-0.054	0.406	0.237
48-72 months	96-120 months	0.019	0.349	-0.211	0.250	1.000
72-96 months	96-120 months	0.195	2.940	-0.078	0.4687	0.307

Table S3. Tukey's post-hoc multiple comparisons table for change in RMS curvature.

Group1	Group2	Mean difference	Q	95% CI		p-value
				Lower limit	Upper limit	
Baseline	0-24 months	0.001	0.020	-0.187	0.189	1.000
Baseline	24-48 months	0.101	2.594	-0.059	0.262	0.449
Baseline	48-72 months	0.010	0.258	-0.144	0.163	1.000
Baseline	72-96 months	0.154	3.171	-0.046	0.354	0.229
Baseline	96-120 months	0.030	0.626	-0.169	0.230	0.998
0-24 months	24-48 months	0.100	2.131	-0.093	0.294	0.661
0-24 months	48-72 months	0.009	0.190	-0.179	0.196	1.000
0-24 months	72-96 months	0.153	2.771	-0.074	0.380	0.374
0-24 months	96-120 months	0.031	0.567	-0.196	0.259	0.999
24-48 months	48-72 months	0.092	2.348	-0.069	0.252	0.561

24-48 months	72-96 months	0.053	1.054	-0.153	0.258	0.976
24-48 months	96-120 months	0.132	2.636	-0.074	0.337	0.431
48-72 months	72-96 months	0.144	2.974	-0.055	0.344	0.295
48-72 months	96-120 months	0.040	0.824	-0.160	0.240	0.992
72-96 months	96-120 months	0.184	3.196	-0.053	0.422	0.221