Table S1. Linear and quadratic regression models of normalized percent BV by age by population and sex

Linear Models

Tsimane Female

Predictor	*B*	*95% CI*	*95% CI*	*p-value*
Intercept (at age 40)	89.4626	88.7839	90.1414	<0.001
Age	-0.2226	-0.2537	-0.1915	<0.001

Tsimane Male

Predictor	*B*	*95% CI*	*95% CI*	*p-value*
Intercept (at age 40)	89.8289	89.1015	90.5564	<0.001
Age	-0.2415	-0.2746	-0.2084	<0.001

Moseten Female

Predictor	*B*	*95% CI*	*95% CI*	*p-value*
Intercept (at age 40)	89.8301	88.9893	90.6710	<0.001
Age	-0.2615	-0.3062	-0.2167	<0.001

Moseten Male

Predictor	*B*	*95% CI*	*95% CI*	*p-value*
Intercept (at age 40)	91.2876	90.5047	92.0704	<0.001
Age	-0.3120	-0.3518	-0.2722	<0.001

Quadratic Models

Tsimane Female

Predictor	*B*	*95% CI*	*95% CI*	*p-value*
Intercept (at age 40)	88.0363	86.9438	89.1287	<0.001
Age	-0.0486	-0.1583	0.0611	0.086
Age squared	-0.0041	-0.0065	-0.0016	0.054

Tsimane Male

Predictor	*B*	*95% CI*	*95% CI*	*p-value*
Intercept (at age 40)	88.7793	87.4895	90.0691	<0.001
Age	-0.1156	-0.2477	0.0164	0.086
Age squared	-0.0029	-0.0059	0.0000	0.054

Moseten Female

Predictor	*B*	*95% CI*	*95% CI*	*p-value*
Intercept (at age 40)	89.4399	88.2552	90.6247	<0.001
Age	-0.1982	-0.3407	-0.0556	0.007
Age squared	-0.0017	-0.0053	0.0019	0.357

Moseten Male

Predictor	*B*	*95% CI*	*95% CI*	*p-value*
Intercept (at age 40)	90.2668	89.0912	91.4424	<0.001
Age	-0.1613	-0.2976	-0.0250	0.021
Age squared	-0.0039	-0.0073	-0.0005	0.024

Table S2. Regression models predicting normalized percent brain volume from Table 2 including 95% confidence intervals.

	Model 1 Base Age/Sex/Pop. Model				Model 2 Model 1 + Linear Predictors				Model 3 Quadratic BMI and nonHDL-C				Model 44 Categorical BMI, nonHDL-C and Anemia			
Predictor variable	*B*	*95% CI*		*p-value*	*B*	*95% CI*		*p-value*	*B*	*95% CI*		*p-value*	*B*	*95% CI*		*p-value*
Constant	85.644	85.312	85.976	<0.001	86.180	85.741	86.619	<0.001	86.487	86.028	86.946	<0.001	85.757	85.253	86.261	0.000
Age (centered on median age)	-0.193	-0.224	-0.162	<0.001	-0.149	-0.185	-0.114	<0.001	-0.144	-0.179	-0.108	<0.001	-0.152	-0.188	-0.116	0.000
Age squared	-0.003	-0.005	-0.002	<0.001	-0.002	-0.004	-0.001	0.010	-0.002	-0.004	-0.001	0.008	-0.002	-0.004	-0.001	0.010
Male	0.224	-0.140	0.587	0.228	-1.004	-1.643	-0.366	0.002	-1.039	-1.677	-0.402	0.001	-0.701	-1.320	-0.081	0.027
Moseten	0.027	-0.358	0.411	0.892	0.132	-0.302	0.566	0.550	0.205	-0.227	0.637	0.352	0.133	-0.303	0.570	0.549
Male X Age	-0.034	-0.070	0.001	0.056	-0.046	-0.086	-0.007	0.021	-0.051	-0.090	-0.012	0.010	-0.047	-0.087	-0.007	0.020
Moseten X Age	-0.072	-0.109	-0.034	<0.001	-0.077	-0.119	-0.035	<0.001	-0.078	-0.120	-0.037	<0.001	-0.076	-0.118	-0.034	0.000
Z - Height	-	-	-	-	0.662	0.356	0.968	<0.001	0.635	0.331	0.939	<0.001	0.641	0.335	0.947	<0.001
Z - BMI	-	-	-	-	0.370	0.151	0.590	0.001	0.524	0.289	0.758	<0.001	-	-	-	-
Z - BMI squared	-	-	-	-	-	-	-	-	-0.174	-0.287	-0.061	0.003	-	-	-	-
Z - nonHDL-C	-	-	-	-	0.310	0.095	0.524	0.005	0.392	0.168	0.617	0.001	-	-	-	-
Z - nonHDL-C squared	-	-	-	-	-	-	-	-	-0.140	-0.246	-0.035	0.009	-	-	-	-
Z - Hemoglobin	-	-	-	-	0.263	0.032	0.494	0.025	0.245	0.016	0.475	0.036	-	-	-	-
Z - Epicardial fat	-	-	-	-	-0.279	-0.498	-0.061	0.012	-0.282	-0.498	-0.065	0.011	-0.239	-0.455	-0.023	0.030
Z - Aortic arch calc. (AAC)	-	-	-	-	-0.339	-0.570	-0.108	0.004	-0.361	-0.590	-0.132	0.002	-0.341	-0.572	-0.111	0.004
Z – Asc-desc. aortic calc.	-	-	-	-	-0.162	-0.350	0.025	0.090	-0.165	-0.351	0.020	0.081	-0.153	-0.340	0.034	0.108
BMI: <18.5	-	-	-	-	-	-	-	-	-	-	-	-	-0.212	-1.139	0.715	0.654
BMI: 18.5-24.9 (baseline)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BMI: 25-29.9	-	-	-	-	-	-	-	-	-	-	-	-	0.941	0.474	1.408	<0.001
BMI: ≥ 30	-	-	-	-	-	-	-	-	-	-	-	-	0.598	-0.177	1.373	0.130
nonHDL-C < 80	-	-	-	-	-	-	-	-	-	-	-	-	-0.814	-1.446	-0.181	0.012
nonHDL-C 80-129 (baseline)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
nonHDL-C 130 - 159	-	-	-	-	-	-	-	-	-	-	-	-	0.731	0.217	1.246	0.005
nonHDL-C ≥160	-	-	-	-	-	-	-	-	-	-	-	-	0.066	-0.696	0.828	0.864
Anemia	-	-	-	-	-	-	-	-	-	-	-	-	-0.495	-1.003	0.013	0.057
	N=1165	AIC = 5985	BIC = 6020	R2=0.417	N=911	AIC = 4618	BIC = 4685	R2=0.474	N=911	AIC = 4604	BIC = 4681	R2=0.486	N=911	AIC = 4615	BIC = 4701	R2=0.480

Table S3. Relationships between predictors and normalized percent BV estimated from separate regression models controlling for age, sex, and population

Predictor Variable	*B*	*95% CI*		*p-value*	*N*
Z – Education	0.1100	-0.1342	0.3541	0.377	714
Z – Weight	0.5810	0.3819	0.7801	<0.001	1151
Z – Height	0.6802	0.3999	0.9604	<0.001	1151
Z – BMI	0.4113	0.2243	0.5983	<0.001	1151
Z – Cholesterol	0.3840	0.1799	0.5881	<0.001	947
Z – non-HDL-C	0.4693	0.2648	0.6737	<0.001	942
Z – Fasting blood sugar	-0.0044	-0.2086	0.1997	0.966	948
Z - Hemoglobin	0.4373	0.2226	0.6519	<0.001	1082
Z – Epicardial fat	-0.1219	-0.3182	0.0744	0.223	1153
Z – Liver density	-0.0993	-0.2884	0.0898	0.303	1152
Z – Systolic blood pressure	-0.0097	-0.2030	0.1835	0.921	1145
Z – Diastolic blood pressure	-0.1100	-0.3000	0.0800	0.256	1145
Z – Aortic arch calcification	-0.5290	-0.7336	-0.3243	<0.001	1156
Z – Ascending-descending aortic calcification	-0.2753	-0.4590	-0.0915	0.003	1158
Z – Coronary artery calcification	-0.1048	-0.2946	0.0850	0.279	1155
Z – White blood cells count	-0.0259	-0.2247	0.1730	0.798	1056
Z – Hs-CRP	-0.2907	-0.5292	-0.0521	0.017	702

Table S4. Best-fit regression model predicting normalized percent BV including interactions between predictors, sex, and population

Predictor variable	*B*	*95% CI*		*p-value*
Constant	86.4318	85.9713	86.8922	<0.001
Age (centered on 58)	-0.1284	-0.1736	-0.0833	<0.001
Age squared	-0.0017	-0.0035	0.0000	0.056
Male	-0.9655	-1.6028	-0.3282	0.003
Moseten	0.1917	-0.2395	0.6229	0.383
Male * Age	-0.0704	-0.1328	-0.0079	0.027
Moseten * Age	-0.1007	-0.1488	-0.0525	<0.001
Z - Height	0.5806	0.2752	0.8860	<0.001
Z - BMI	0.3309	0.0417	0.6201	0.025
Z - BMI squared	-0.1590	-0.2723	-0.0458	0.006
Z – non-HDL-C	0.3849	0.1613	0.6086	0.001
Z – non-HDL-C squared	-0.1349	-0.2397	-0.0300	0.012
Z - hemoglobin	0.2810	0.0518	0.5102	0.016
Z – epicardial fat	-0.3004	-0.5166	-0.0842	0.007
Z - AAC	-0.4538	-1.0119	0.1043	0.111
Z - TAC	-0.1598	-0.3447	0.0250	0.090
Z – Height * Age	0.0284	-0.0013	0.0581	0.061
Z – BMI * Male	0.4443	0.0280	0.8606	0.036
Z – AAC * Tsimane * Male	-0.0014	-0.6285	0.6256	0.996
Z – AAC * Moseten * Female	0.8273	0.0631	1.5916	0.034
Z – AAC * Moseten * Male	-0.0225	-0.7843	0.7393	0.954
	N = 911	AIC = 4597.6	BIC = 4698.7	R2 = 0.4936

Table S5. Allometric model predicting ln(BV) as a function of ln(TICV)

Predictor	*B*	*95% CI*		*p-value*
Constant	0.9828	0.5840	1.3816	<0.001
ln(TICV)	0.9184	0.8899	0.9469	<0.001
			N = 1165	R2 = 0.7743

Table S6. Multivariate regression models predicting unnormalized percent BV (i.e. without allometric adjustment)

	Model 1 Base Age/Sex/Pop. Model				Model 2 Model 1 + Linear Predictors				Model 3 Quadratic BMI and nonHDL-C				Model 4 Categorical BMI, nonHDL-C and Anemia			
Predictor variable	*B*	*95% CI*		*p-value*	*B*	*95% CI*		*p-value*	*B*	*95% CI*		*p-value*	*B*	*95% CI*		*p-value*
Constant	86.245	85.909	86.581	<0.001	86.599	86.150	87.047	<0.001	86.921	86.453	87.389	<0.001	86.213	85.697	86.729	<0.001
Age (centered on median age)	-0.194	-0.225	-0.163	<0.001	-0.159	-0.195	-0.122	<0.001	-0.153	-0.189	-0.117	<0.001	-0.161	-0.198	-0.125	<0.001
Age squared	-0.003	-0.005	-0.002	<0.001	-0.003	-0.004	-0.001	0.004	-0.003	-0.004	-0.001	0.003	-0.003	-0.004	-0.001	0.004
Male	-0.643	-1.010	-0.275	0.001	-1.515	-2.168	-0.863	<0.001	-1.548	-2.199	-0.897	0.000	-1.271	-1.904	-0.638	<0.001
Moseten	-0.051	-0.440	0.338	0.797	0.056	-0.387	0.499	0.804	0.132	-0.309	0.573	0.558	0.057	-0.389	0.503	0.802
Male X Age	-0.035	-0.071	0.000	0.053	-0.043	-0.083	-0.002	0.038	-0.047	-0.087	-0.007	0.020	-0.043	-0.084	-0.003	0.036
Moseten X Age	-0.069	-0.107	-0.031	<0.001	-0.074	-0.117	-0.031	0.001	-0.076	-0.118	-0.033	0.001	-0.073	-0.116	-0.031	0.001
Z - Height	-	-	-	-	0.440	0.127	0.753	0.006	0.411	0.100	0.721	0.010	0.423	0.110	0.735	0.008
Z - BMI	-	-	-	-	0.302	0.077	0.526	0.008	0.460	0.220	0.700	<0.001	-	-	-	-
Z - BMI squared	-	-	-	-	-	-	-	-	-0.179	-0.294	-0.064	0.002	-	-	-	-
Z - nonHDL-C	-	-	-	-	0.322	0.103	0.541	0.004	0.412	0.183	0.641	<0.001	-	-	-	-
Z - nonHDL-C squared	-	-	-	-	-	-	-	-	-0.152	-0.259	-0.044	0.006	-	-	-	-
Z - Hemoglobin	-	-	-	-	0.220	-0.016	0.455	0.068	0.200	-0.034	0.435	0.094	-	-	-	-
Z - Epicardial fat	-	-	-	-	-0.285	-0.508	-0.062	0.012	-0.287	-0.508	-0.066	0.011	-0.244	-0.465	-0.024	0.030
Z - Aortic arch calc. (AAC)	-	-	-	-	-0.358	-0.594	-0.122	0.003	-0.381	-0.614	-0.147	0.001	-0.359	-0.595	-0.124	0.003
Z – Asc-desc. aortic calc.	-	-	-	-	-0.163	-0.355	0.028	0.094	-0.167	-0.356	0.023	0.084	-0.157	-0.348	0.034	0.107
BMI: <18.5	-	-	-	-	-	-	-	-	-	-	-	-	-0.159	-1.107	0.789	0.743
BMI: 18.5-24.9 (baseline)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BMI: 25-29.9	-	-	-	-	-	-	-	-	-	-	-	-	0.840	0.363	1.318	0.001
BMI: ≥ 30	-	-	-	-	-	-	-	-	-	-	-	-	0.369	-0.423	1.162	0.360
nonHDL-C < 80	-	-	-	-	-	-	-	-	-	-	-	-	-0.809	-1.455	-0.162	0.014
nonHDL-C 80-129 (baseline)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
nonHDL-C 130 - 159	-	-	-	-	-	-	-	-	-	-	-	-	0.724	0.198	1.250	0.007
nonHDL-C ≥160	-	-	-	-	-	-	-	-	-	-	-	-	0.164	-0.615	0.943	0.679
Anemia	-	-	-	-	-	-	-	-	-	-	-	-	-0.338	-0.8578	0.1820	0.203
	N=1165	AIC =6014	BIC = 6049	R2=0.418	N=911	AIC = 4656	BIC = 4723	R2=0.466	N=911	AIC = 4641	BIC = 4718	R2=0.478	N=911	AIC = 4655	BIC = 4742	R2=0.472