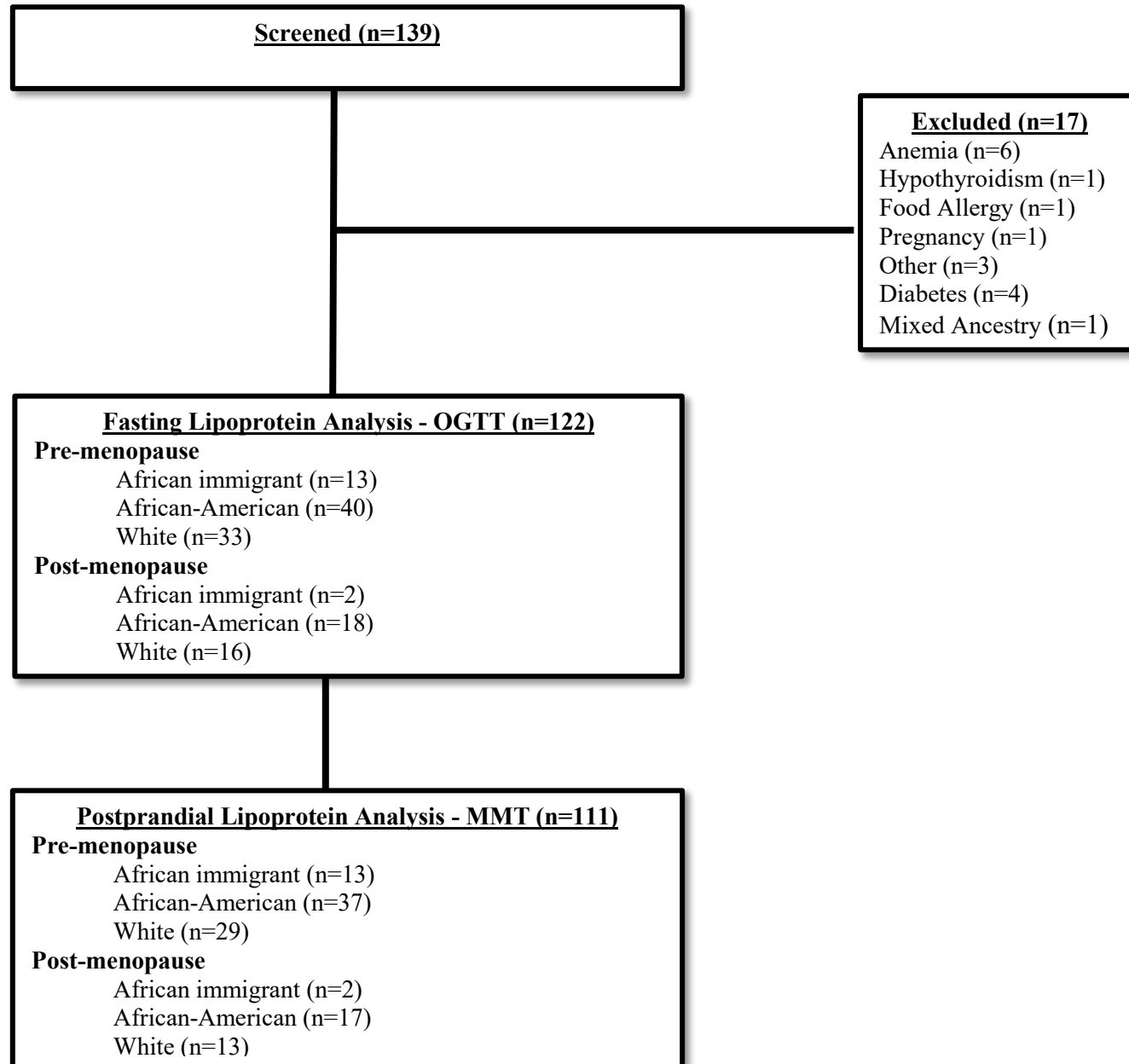
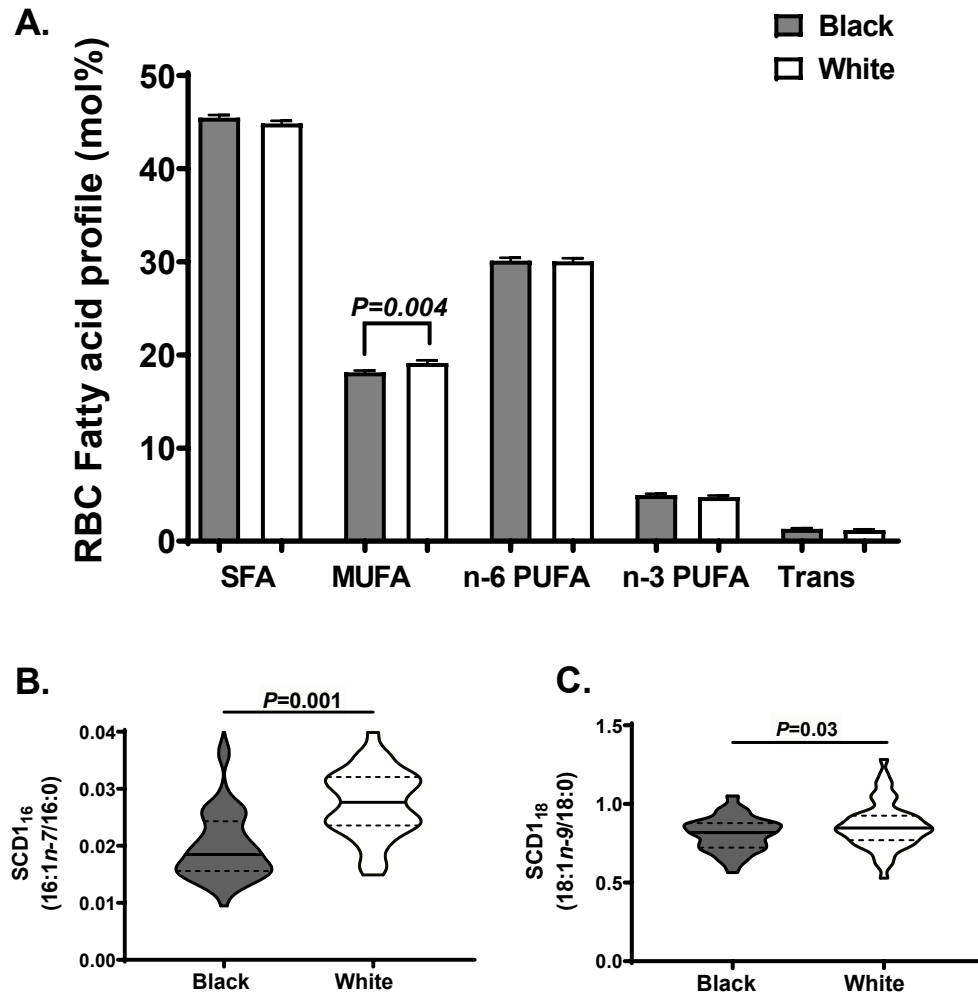


SUPPLEMENTAL MATERIAL

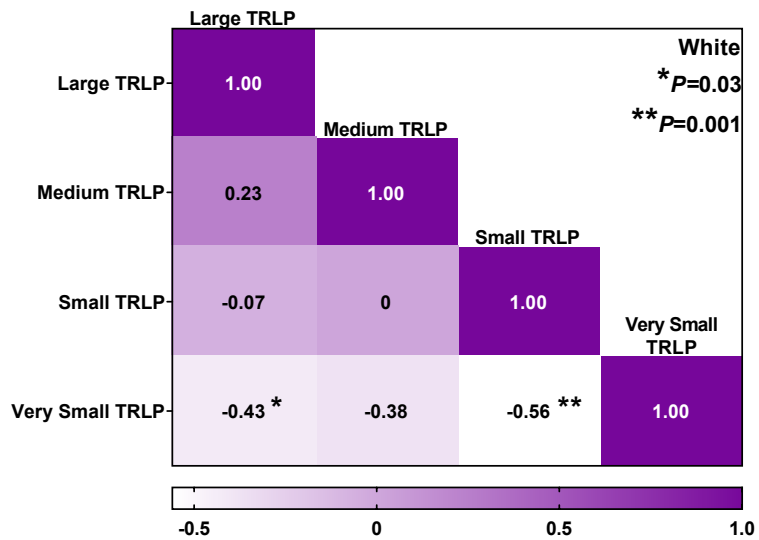
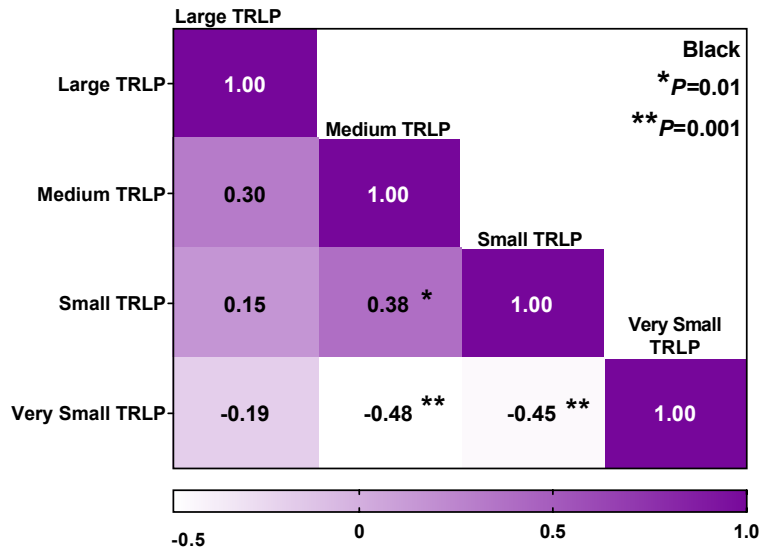
Online Figure I Participant flow diagram



Online Figure II. Bar graph of red blood cell fatty acid profile in black (gray bars) and white (white bars) women (A). Violin plot of stearoyl Co-A desaturase-16 activity index in black (gray) and white (white) women (B). The shape of the violin is the frequency distribution of the data, the solid black line represents the median and the dotted black line represents the interquartile range. Mann-Whitney tests were used to compare variables by race. SFA: saturated fatty acid; MUFA: monounsaturated fatty acid; n-6 PUFA: omega 6 polyunsaturated fatty acid; n-3 PUFA: omega 3 polyunsaturated fatty acid; Trans: trans saturated fatty acid.



Online Figure III. Correlation plot of total change in triglyceride-rich lipoprotein (TRLP) subfractions over 5 hours in the Mixed Meal Tolerance Test. Spearman correlations with Bonferroni corrections accounting for 4 comparisons between TRLP subfractions were used to determine correlation coefficients (r).



Online Table I: Triglyceride-rich lipoprotein particle (TRLP) subclasses quantified by nuclear magnetic resonance

| TRLP Subclass | Description | Estimated Diameter Range (nm) | Triglycerides per particle (mg/dL) | Cholesterol per particle (mg/dL) |
|----------------------|--------------------|--------------------------------------|---|---|
| VL-TRLP | Very Large TRLP | 90-240 | 22 - 310 | 2.3 - 10.3 |
| L-TRLP | Large TRLP | 50-89 | 4 - 12 | 0.7 - 1.6 |
| M-TRLP | Medium TRLP | 37-49 | 1.1 - 2.3 | 0.25 – 0.40 |
| S-TRLP | Small TRLP | 30-36 | 0.2 – 0.6 | 0.17 – 0.25 |
| VS-TRLP | Very Small TRLP | 24-29 | 0.10 – 0.14 | 0.10 – 0.14 |

Adapted from Jeyarajah et al. 2006 and Matyus et al. 2014; unpublished data on TRLP subclass triglyceride and cholesterol compositions (LabCorp data on file).

Online Table II: Metabolic characteristics of black women of African ancestry

| | Pre-menopausal (n=53) | | | Post-menopausal (n=20) | | |
|--|-----------------------------|----------------------------|--------------|----------------------------|----------------------------|---------|
| | African Immigrant (n=13) | African-American (n=40) | P-value | African Immigrant (n=2) | African-American (n=18) | P-value |
| Age (years) | 35±9 | 40±7 | 0.06 | 52±3 | 53±5 | 0.75 |
| BMI (kg/m²) | 26.8±3.8 | 31.7±6.2 | 0.01 | 26.8±3.4 | 29.9±5.1 | 0.42 |
| Visceral fat L2-3 (cm²)* | 34.1 (29.7-36.3) | 65.6 (30.7-126.9) | 0.06 | 66.6 (34.4-98.8) | 88.5 (58.3-132.4) | 0.34 |
| Subcutaneous fat L2-3 (cm²)* | 183.5 (155.0-214.0) | 314 (141.5-542.2) | 0.002 | 277.7 (232.4-323.0) | 277.2 (208.0-426.6) | 0.87 |
| Hepatic fat content (%)[†] | 0.47 (0.42-0.52) | 0.68 (0.39-3.75) | 0.13 | 1.07 (0.53-1.61) | 1.23 (0.39-3.73) | 1.00 |
| Intra-myocellular (%)[‡] Tibialis Anterior | 2.30 (1.54-2.83) | 2.21 (1.56-2.63) | 0.94 | 2.62 (1.77-3.47) | 1.93 (1.76-2.57) | 0.53 |
| Extramyocellular (%)[‡] Tibialis Anterior | 3.10 (2.24-3.53) | 3.17 (2.78-3.93) | 0.41 | 3.12 (2.64-3.61) | 3.10 (2.65-3.69) | 0.87 |
| Fasting lipid profile | | | | | | |
| Total cholesterol (mg/dL) | 159±36 | 167±27 | 0.39 | 150±21 | 186±35 | 0.18 |
| LDL cholesterol (mg/dL) | 84±36 | 95±25 | 0.21 | 78±12 | 109±28 | 0.15 |
| HDL cholesterol (mg/dL) | 65±18 | 59±17 | 0.31 | 60±7 | 63±18 | 0.85 |
| Triglyceride (mg/dL) | 45 (40-60) | 56 (34-105) | 0.20 | 61 (57-64) | 61 (51-85) | 1.00 |
| Metabolic Characteristics | | | | | | |
| Prediabetes n (%) | 1 (8) | 9 (23) | 0.24 | 1 (50) | 12 (67) | 0.64 |
| Fasting glucose (mg/dL) | 89±8 | 91±6 | 0.37 | 90±4 | 95±7 | 0.37 |
| 2-hour glucose (mg/dL) | 120±19 | 122±25 | 0.73 | 127±28 | 135±22 | 0.63 |
| Insulinogenic index | 1.89 (1.13-2.86) | 1.79 (0.81-5.58) | 0.82 | 1.76 (1.34-2.18) | 1.68 (0.89-3.40) | 0.90 |
| Matsuda index | 7.79 (4.16-9.43) | 4.34 (1.54-10.76) | 0.08 | 5.31 (4.92-5.69) | 4.37 (2.79-7.16) | 0.61 |
| Acute Insulin Response (mU·⁻¹min⁻¹) | 716.7 (429-939.4) | 907.1 (400.1-2208.5) | 0.31 | 1279.3 (1184.7-1373.9) | 542 (307.8-1003.4) | 0.07 |
| Insulin sensitivity index, S_I (mU/L)⁻¹min⁻¹x10⁻⁴)[§] | 2.82 (2.11-3.51) | 2.15 (0.81-4.88) | 0.20 | 2.38 (2.37-2.40) | 2.39 (1.67-3.32) | 1.00 |

Data are presented as mean±SD, n (%) or median (25th-75th percentile), *n=57, †n=54, ‡n=51, §n=65. Unpaired Student's t tests and Mann-Whitney tests were used to compare groups for continuous parametric and non-parametric variables respectively.

Online Table III: Socio-demographic, Diet and Lifestyle Characteristics by Race/Ethnicity

| Variable | African immigrant (n=15) | African American (n=58) | White (n=49) | P-value |
|---|-----------------------------|-------------------------|--------------------|---------------|
| Socio-demographic | | | | |
| Income \geq 100,000 | 5 (33) | 35 (60) | 34 (69) | 0.0001 |
| College Degree | 14 (93) | 48 (83) | 47 (96) | 0.21 |
| Married | 6 (40) | 18 (31) | 25 (53) | 0.07 |
| Smoker | 0 (0) | 3 (5) | 1 (2) | 0.50 |
| Family History of Diabetes | 7 (47) | 41 (71) | 29 (59) | 0.17 |
| Moderate vigorous activity (min/day) | 17 (8-28) | 24 (13-37) | 27 (18-38) | 0.01 |
| Dietary Intake (Food records) * | | | | |
| Energy (kcal) | 1586.0 \pm 418.0 | 1976.4 \pm 452.6 | 2053.1 \pm 539.3 | 0.006 |
| Total fat (g) | 63.6 \pm 24.0 | 83.1 \pm 25.8 | 87.4 \pm 32.3 | 0.02 |
| Total carbohydrate (g) | 188.4 \pm 52.8 | 226.8 \pm 59.9 | 229.0 \pm 72.0 | 0.09 |
| Total protein (g) | 71.7 \pm 16.7 | 79.0 \pm 19.6 | 85.1 \pm 26.1 | 0.10 |
| Total alcohol (g) | 3.3 \pm 5.6 | 6.9 \pm 10.5 | 8.4 \pm 10.6 | 0.23 |
| Total cholesterol (mg/dL) | 234.6 \pm 97.4 | 281.6 \pm 129.3 | 296.9 \pm 139.2 | 0.27 |
| Total saturated fatty acids (g) | 17.1 \pm 6.3 | 24.6 \pm 8.8 | 28.9 \pm 11.1 | 0.0002 |
| Total monounsaturated fatty acids (g) | 24.9 \pm 8.5 | 30.4 \pm 10.7 | 32.0 \pm 14.5 | 0.15 |
| Total polyunsaturated fatty acids (g) | 16.0 \pm 10.0 | 21.7 \pm 9.1 | 19.4 \pm 6.5 | 0.05 |
| Total dietary fiber (g) | 21.2 \pm 7.1 | 19.9 \pm 8.6 | 23.2 \pm 7.7 | 0.13 |
| Soluble dietary fiber (g) | 5.7 \pm 1.9 | 5.5 \pm 2.2 | 7.1 \pm 2.5 | 0.0009 |
| Insoluble dietary fiber (g) | 15.5 \pm 5.7 | 14.4 \pm 6.9 | 15.9 \pm 6.1 | 0.50 |
| Total sugars (g) | 75.9 \pm 28.2 | 100.3 \pm 36.3 | 96.5 \pm 38.8 | 0.08 |
| Omega-3 fatty acids (g) | 1.7 \pm 0.74 | 2.3 \pm 1.0 | 2.0 \pm 0.74 | 0.07 |
| Added sugars by available carbohydrates (g) | 33.5 \pm 21.6 | 69.6 \pm 36.5 | 54.8 \pm 28.9 | 0.0005 |

Data are n (%), mean \pm SD or median (25th-75th percentile); *African-American (n=55), White (n=48). Comparisons by ethnicity for categorical variables were with chi-squared analysis, moderate vigorous activity with Mann-Whitney test, and dietary intake by analysis of variance (ANOVA) with Bonferroni corrections for 3 comparison by ethnicity.

Online Table IV: RBC Fatty Acid Profile by Ethnicity

| Fatty acid (mol%) | African immigrant (n=15) | African American (n=58) | P-value |
|--------------------------|-------------------------------------|------------------------------------|----------------|
| Saturated | 45 (44-47) | 45 (44-47) | 0.5 |
| Monounsaturated | 18 (17-20) | 18 (17-19) | 0.43 |
| Polyunsaturated-omega6 | 29 (27-31) | 31 (29-32) | 0.05 |
| Polyunsaturated-omega3 | 5 (5-6) | 5 (4-6) | 0.12 |
| Total Trans-saturated | 1.1 (0.9-1.5) | 1.2 (1.0-1.5) | 0.78 |

Data are median (25th-75th percentile); Mann-Whitney tests were used to compare groups.