Supplemental Table 1. Biomarkers of iron and iodine status assessed, adult population data available for the current analysis, and laboratory method used, NHANES 2003–2006[1].

Biomarker	Matrix	Survey cycle	Population	Laboratory method[2]	Imprecision	LOD[3]
FER	Serum	2003–2006	Females 20–49 y	Roche IT	3.0–8.0% at 58.7–432 μg/L	3 μg/L
sTfR	Serum	2003–2006	Females 20–49 y	Roche IT	1.6–3.9% at 2.19–7.15 mg/L	0.5 mg/L
Body iron	Serum	2003–2006	Females 20–49 y	Calculated value[4]	n/a	n/a
Iodine	Urine	2003–2006	1/3 subset ≥20 y	ICP-DRC-MS	1.0–2.4% at 78.0–308 μg/L	1 μg/L

[1] FER, ferritin; sTfR, soluble transferrin receptor; SI conversion factors are as follows: FER, ×2.247 (pmol/L); sTfR (no generally accepted conversion factor available); urine iodine, ×7.88 (nmol/L)

[2] IT, immunoturbidity; ICP-DRC-MS, inductively coupled plasma-direct reaction chamber-mass spectrometry

[3] LOD, limit of detection

[4] We calculated body iron by using the following formula[1]: body iron (mg/kg) = -[log10 (sTfR * 1000 / ferritin) – 2.8229] / 0.1207. The sTfR concentration in this formula represents an adjusted concentration[2] to make the Roche sTfR concentrations equivalent to the Flowers assay[3] used in the development of the body iron model: Flowers sTfR = 1.5 * Roche sTfR + 0.35 mg/L

[1] Cook JD, Flowers CH, Skikne BS. The quantitative assessment of body iron. Blood. 2003;101:3359–64.
[2] Pfeiffer CM, Cook JD, Mei Z, Cogswell ME, Looker AC, Lacher DA. Evaluation of an automated soluble transferrin receptor (sTfR) assay on the Roche Hitachi analyzer and its comparison to two ELISA assays. Clin Chim Acta. 2007;382:112–6.
[3] Flowers CH, Skikne BS, Covell AM, Cook JF. The clinical measurement of serum transferrin receptor. J Lab Clin Med. 1989;114:368–77.

Supplemental Table 2. Sample sizes for biomarkers of iron and iodine status by sociodemographic and lifestyle factors for adults ≥20 y, NHANES 2003–2006[1]

	Women 20–49 y of age			Adults ≥20 y of age
	Serum ferritin	**Serum sTfR[2]**	**Body iron**	**Urine iodine**
Age, y				
20–39	1780	1761	1758	1134
40–49	759	752	751	n/a
40–59	n/a	n/a	n/a	919
≥60	No data	No data	No data	1013
Sex				
Males	No data	No data	No data	1477
Females	2539	2513	2509	1589
Race-ethnicity				
Mexican American	589	584	582	637
Non-Hispanic black	573	565	565	627
Non-Hispanic white	1153	1143	1142	1551
Education				
<High school	566	556	554	882
High school	564	562	561	731
>High school	1408	1394	1393	1449
PIR[3]				
Low	1087	1076	1073	1193
Medium	571	568	568	770
High	773	762	761	965
Supplement use[4]				
No	1233	1222	1219	1467
Yes	1304	1289	1288	1594
Smoking[5]				
No	1952	1931	1928	2176
Yes	585	580	579	756

Alcohol consumption[6]				
No drinks	778	771	770	1009
<1 (not 0)	1387	1370	1368	1489
1–<2	90	89	89	192
≥2	37	37	37	150
BMI[7]				
Underweight	57	56	56	38
Normal weight	828	821	820	895
Overweight	696	689	687	1049
Obese	930	919	918	1043
Physical activity[8]				
None reported	848	835	834	1155
0–<500	678	670	670	667
500–<1000	320	316	315	372
≥1000	644	644	642	758

[1] Data for iodine only available for a 1/3 subsample

[2] sTfR, soluble transferrin receptor

[3] PIR, family poverty-to-income ratio: 0–1.85 (low); >1.85–3.5 (medium); >3.5 (high)

[4] "Supplement user" defined as participant who reported taking any dietary supplement within the past 30 d

[5] "Smoker" defined by serum cotinine concentration >10 μg/L

[6] Alcohol consumption: calculated as average daily consumption [(quantity x frequency) / 365.25]; 1 drink ≈ 15 g ethanol

[7] BMI (kg/m^2) definitions: <18.5 (underweight); 18.5–<25 (normal weight); 25–<30 (overweight); and ≥30 (obese)

[8] Physical activity: calculated as total metabolic equivalent task (MET)-min/wk from self-reported leisure time physical activities

Supplemental Table 3. Descriptive information of the respondent characteristics by factor for adults ≥20 y, NHANES 2003–2006

Factor	Category	2003–2006[1]	Women 20–49 y 2003–2006[2]	Iodine 1/3 sample 2003–2006[3]
Age, y	20–39	38.4	63.7	38.4
	40–59	38.8	36.3	38.8
	≥60	22.8	0	22.8
Gender	Male	48.0	0	48.0
	Female	52.0	100	52.0
Race-ethnicity	Mexican American	7.9	9.6	7.87
	Non-Hispanic black	11.4	13.7	11.4
	Non-Hispanic white	72	66.4	70.9
	Other Hispanic	3.5	4.2	3.8
	Other (including multiracial)	5.4	6.1	6.0
Education	≤High school	44.2	37.5	43.5
	>High school	55.9	62.5	56.5
PIR[4]	Low	29.3	33.2	28.8
	Middle	28.0	26.3	28.0
	High	42.7	40.5	43.3
Supplement use[5]	No	45.9	48.0	44.9
	Yes	54.1	52.0	55.1
Smoking status[6]	No	71.2	73.0	72.4
	Yes	28.9	27.0	27.6
Alcohol consumption[7]	No drinks	29.4	26.8	29.2
	<1 (not 0)	56.8	66.0	56.3
	1–<2	7.9	5.0	8.1
	≥2	6.0	2.2	6.4
BMI[8]	Underweight	1.8	2.8	NR
	Normal weight	31.6	38.9	31.7
	Overweight	33.4	24.8	33.2
	Obese	33.3	33.6	33.6
Physical activity[9]	None reported	32.1	27.9	33.7
	0–<500	24.2	27.9	23.1
	500–<1000	14.0	14.0	14.3
	≥1000	29.7	30.2	29.0

[1] Estimates provided are weighted percent (%) and apply to all adults ≥20 y based on the MEC sample

[2] Estimates provided are weighted percent (%) and apply to the iron status indicators

[3] Estimates provided are weighted percent (%) and apply to urine iodine

[4] PIR, family poverty income ratio: 0–1.85 (low); >1.85–3.5 (medium); >3.5 (high)

[5] "Supplement user" defined as participant who reported taking a dietary supplement within the past 30 d

[6] "Smoker" defined by serum cotinine concentration >10 μg/L

[7] Alcohol consumption: average daily consumption [(quantity x frequency) / 365.25]; 1 drink ≈15 g ethanol

[8] BMI (kg/m^2) definitions: <18.5 (underweight); 18.5–<25 (normal weight); 25–<30 (overweight); ≥30 (obese)

[9] Physical activity: calculated as total metabolic equivalent task (MET)-min/wk from self-reported leisure time physical activities

Supplemental Table 4. *Beta* coefficients from chunk-wise modeling approach for biomarkers of iron and iodine status by sociodemographic and lifestyle variables for adults ≥20 y, NHANES 2003–2006[1,2]

Variable	Serum ferritin	Serum sTfR	Body iron	Urine iodine
Age: continuous, every 10 y increase				
Model 1	0.12*	0.01	0.40*	0.08*
Model 2	0.10*	0.02*	0.29*	0.08*
Model 3	0.07*	0.02	0.22	0.06*
Model 4	n/a	n/a	n/a	0.11*
Sex: males vs. females				
Model 1	No data	No data	No data	0.20*
Model 2	No data	No data	No data	0.21*
Model 3	No data	No data	No data	0.30*
Model 4	n/a	n/a	n/a	-0.04
Race-ethnicity[3]				
MA vs. NHW				
Model 1	-0.23*	0.04	-0.94*	0.09*
Model 2	-0.17*	0.02	-0.67	0.08
Model 3	-0.04	-0.04	0.01	0.06
Model 4	n/a	n/a	n/a	0.04
NHB vs. NHW				
Model 1	-0.16*	0.24*	-1.37*	-0.12*
Model 2	-0.13*	0.22*	-1.19*	-0.13*
Model 3	-0.07	0.17*	-0.81*	-0.13*
Model 4	n/a	n/a	n/a	-0.41*
PIR[4]: continuous				
Model 1	0.04*	-0.02*	0.23*	-0.02
Model 2	0.02	-0.02*	0.13	-0.03*
Model 3	0.02	-0.02*	0.13*	-0.04*
Model 4	n/a	n/a	n/a	-0.02
Education: ≤high school vs. >high school				
Model 1	-0.07	0.01	-0.29	0.12*
Model 2	-0.02	-0.03	0.00	0.07
Model 3	-0.05	-0.03	-0.12	0.07
Model 4	n/a	n/a	n/a	0.05
Supplement use[5]: yes vs. no				
Model 1	0.11*	-0.03	0.52*	0.13*
Model 3	0.06	-0.01	0.27	0.17*
Model 4	n/a	n/a	n/a	0.20*
Smoking[6]: yes vs. no				
Model 1	-0.22*	0.11*	-1.13*	0.08

Model 3	-0.22*	0.11*	-1.15*	0.01
Model 4	n/a	n/a	n/a	0.07
Alcohol consumption[7]: continuous, ln + 1				
Model 1	0.37*	-0.17*	1.87*	-0.16*
Model 3	0.28*	-0.09*	1.28*	-0.18*
Model 4	n/a	n/a	n/a	-0.11*
BMI: continuous, ln				
Model 1	0.25*	0.33*	-0.21	0.41*
Model 3	0.31*	0.26*	0.22	0.32*
Model 4	n/a	n/a	n/a	-0.02
Physical activity[8]: continuous, ln + 1				
Model 1	0.01	-0.01	0.07*	-0.01*
Model 3	0.02*	-0.00	0.08	-0.00
Model 4	n/a	n/a	n/a	0.00
Sample size, *n*				
Model 2	2431	2406	2402	2924
Model 3	2153	2130	2127	2499
Model 4	n/a	n/a	n/a	2499
R^2 value, %				
Model 2	2[&]	6[&]	2[&]	5[&]
Model 3	4[&]	13[&]	5[&]	7[&]
Model 4	n/a	n/a	n/a	41[&]

[1] Model 1, simple linear regression; model 2, multiple linear regression by adjusting for sociodemographic variables; model 3, multiple linear regression by adjusting for sociodemographic and lifestyle variables; model 4 (for urine iodine only), multiple linear regression by adjusting for sociodemographic and lifestyle variables and urine creatinine; change in covariate was carried out while holding any other variables in the model constant

[2] For all biomarkers except body iron, the dependent variable was the log-transformed biomarker concentration; for body iron, the dependent variable was the untransformed estimate; ferritin (µg/L); sTfR (mg/L), soluble transferrin receptor; body iron (mg/kg); urine iodine (µg/L)

[3] MA, Mexican American; NHB, non-Hispanic black; NHW, non-Hispanic white

[4] PIR, family poverty income ratio

[5] "Supplement user" defined as participant who reported taking a dietary supplement within the past 30 d

[6] "Smoker" defined by serum cotinine concentration >10 µg/L

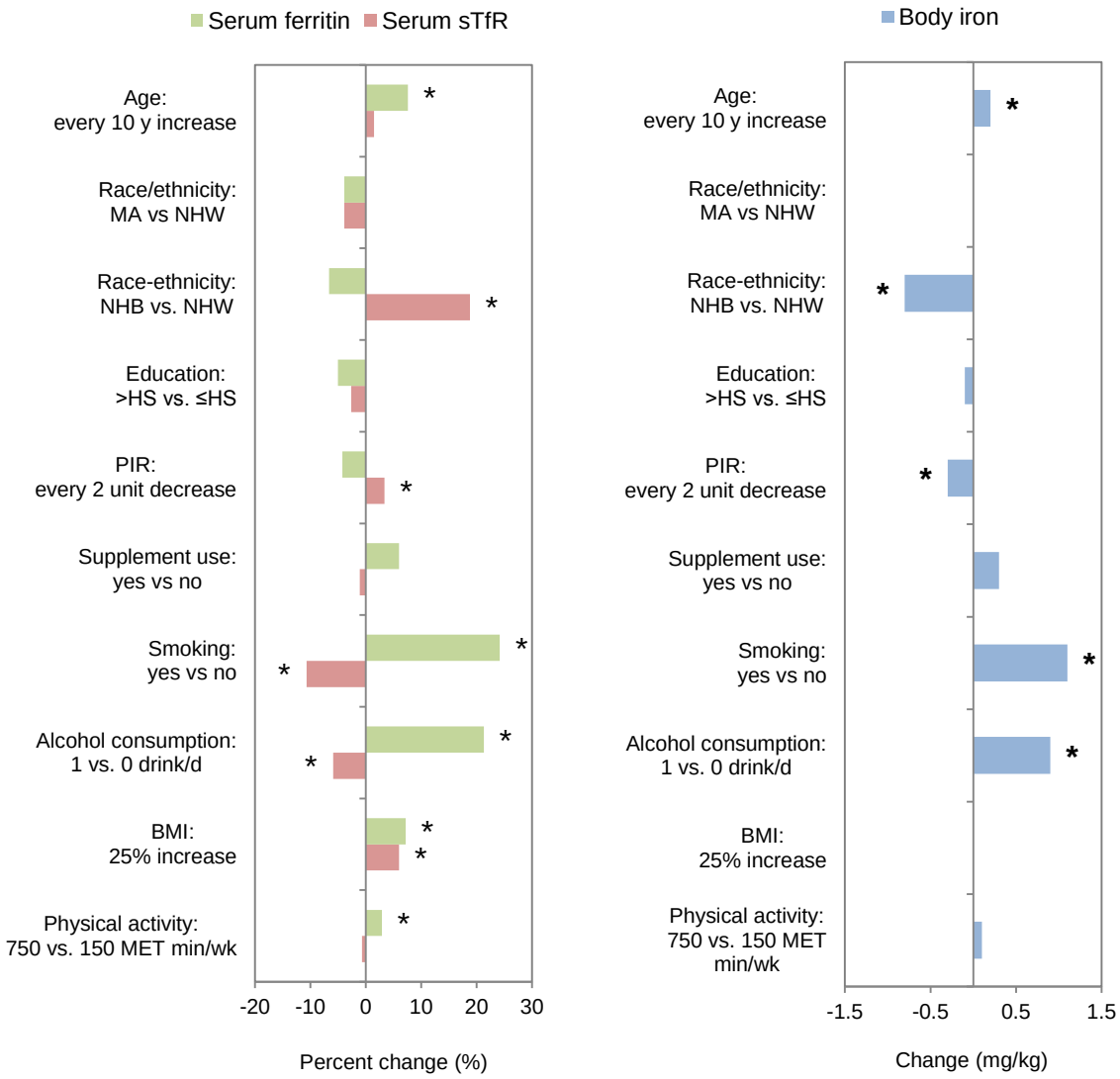
[7] Alcohol consumption: calculated as average daily consumption [(quantity x frequency) / 365.25]; 1 drink ≈ 15 g ethanol

[8] Physical activity: calculated as total metabolic equivalent task (MET)-min/wk from self-reported leisure time physical activities

[*] Wald F *P*-value <0.05; *beta* coefficient is significantly different from zero

[&] Satterthwaite adjusted F *P*-value for chunk test <0.05; testing whether at least one *beta* coefficient for the set of variables in the chunk is significantly different from zero

Supplemental Figure 1. Estimated change in iron status biomarker concentrations with change in sociodemographic and lifestyle variables using data for adults ≥20 y, NHANES 2003–2006.

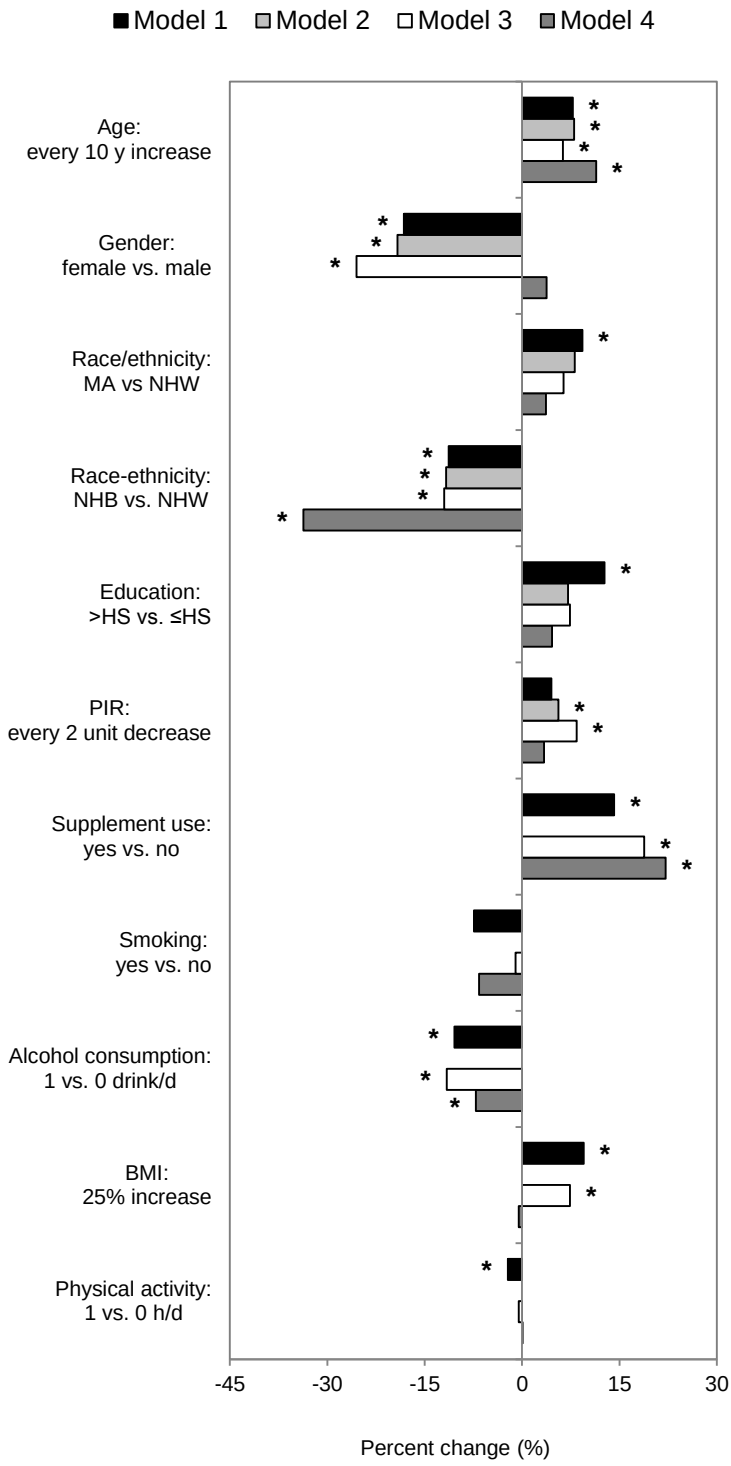


Changes derived from a multiple linear regression model adjusting for sociodemographic and lifestyle variables; change in a covariate was carried out while holding any other variables in the model constant.

Asterisk indicates significance (P <0.05).

HS, high school; MA, Mexican American; MET, metabolic equivalent task; NHB, non-Hispanic black; NHW, non-Hispanic white; PIR, poverty income ratio; TfR, soluble transferrin receptor.

Supplemental Figure 2. Estimated change in urine iodine concentrations with change in sociodemographic and lifestyle variables using data for adults ≥20 y, NHANES 2003–2006.



Change represents percent change (%); model 1, simple linear regression; model 2, multiple linear regression by adjusting for sociodemographic variables; model 3, multiple linear regression by adjusting for sociodemographic and lifestyle variables; model 4, multiple linear regression by adjusting for sociodemographic and lifestyle variables and urine creatinine; change in covariate was carried out while holding any other variables in the model constant.

An asterisk indicates significance (P <0.05).

HS, high school; MA, Mexican American; NHB, non-Hispanic black; NHW, non-Hispanic white; PIR, family poverty income ratio.

"Supplement user" defined as participant who reported taking a dietary supplement within the past 30 d.

"Smoker" defined by serum cotinine concentration >10 µg/L.

Alcohol consumption was calculated as average daily consumption [(quantity x frequency) / 365.25].

A 25% increase in BMI is comparable to a change from being normal weight to overweight.

Physical activity was calculated as total metabolic equivalent task (MET)-min/wk from self-reported leisure time physical activities.