

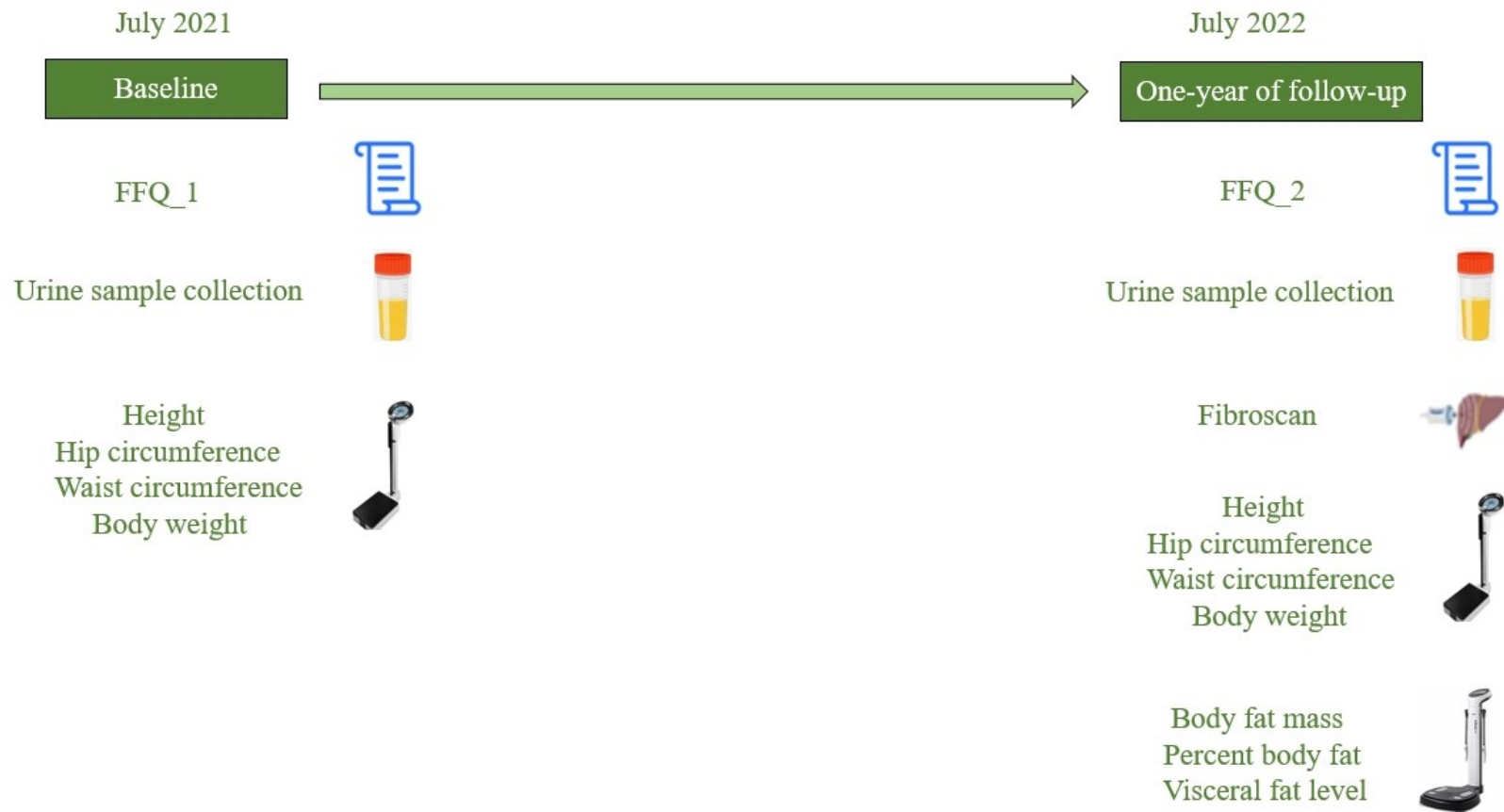
Supplementary Materials

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Supplementary Figure 1 The overall study design of the Anhui Lifestyle Validation Study. FFQ, food frequency questionnaire.

Supplementary Table 1 The characteristics of participants according to urinary alkylresorcinols metabolites concentrations at baseline and after 1-year of follow-up in Huoshan, China^a.

Characteristic	DHPPA at baseline			DHBA at baseline			DHPPA after 1-year of follow-up			DHBA after 1-year of follow-up		
	Tertile 1	Tertile 2	Tertile 3	Tertile 1	Tertile 2	Tertile 3	Tertile 1	Tertile 2	Tertile 3	Tertile 1	Tertile 2	Tertile 3
No. of participants	102	102	102	102	102	102	102	102	102	102	102	102
Age*, years	48.2 (14.3)	47.4 (14.2)	50.2 (16.1)	48.5 (14.5)	47.0 (15.2)	50.4 (14.9)	46.6 (15.8)	50.8 (15.6)	51.6 (12.7)	47.6 (16.2)	49.6 (15.4)	51.8 (12.7)
Female ^{§§} , %	50.7	64.2	51.4	41.8	58.4	65.1	56.7	50.9	56.1	44.1	63.4	59.5
household per capita income*, %												
<10000 Yuan	29.9	48.9	30.9	24.4	45.5	32.4	28.6	19.6	25.6	24.0	19.3	20.9
≥10000 Yuan	70.1	51.1	69.1	75.6	54.5	67.6	71.4	80.4	74.4	76.0	80.7	79.1
Educational level, %												
Primary school or below	34.6	45.2	50.2	36.2	49.8	37.3	43.6	35.0	42.5	36.7	44.5	36.4
Junior high school	27.8	26.7	24.1	26.2	27.5	29.1	27.0	32.5	32.4	29.6	29.8	34.5
Senior high school or above	37.6	28.1	25.7	37.6	22.7	33.6	29.4	32.4	25.1	33.7	25.7	29.1
Current tea drinkers ^{**‡} , %	42.8	37.4	63.3	50.4	44.1	47.1	39.8	54.6	62.9	43.9	52.9	56.8
Current smokers, %	16.2	18.9	22.2	31.0	21.6	16.1	17.3	20.1	28.8	30.0	14.8	26.5
Current drinkers*, %	24.8	10.9	22.9	24.5	18.3	14.4	12.9	17.2	18.9	18.6	16.5	12.7
Diabetes, %	8.5	10.4	15.1	12.4	11.8	10.7	21.1	6.1	18.7	11.9	9.2	18.3
Hypertension, %	51.1	45.6	53.1	50.8	57.4	44.6	47.4	52.7	47.3	50.3	48.5	48.2
Physical activities												
METS-h/week	141 (98-194)	143 (108-199)	154 (93-202)	148 (111-199)	145 (101-212)	141 (92-190)	157 (108-215)	139 (90-200)	144 (96-202)	136 (88-193)	145 (106-227)	144 (96-206)
Total energy intake ^{†§} , kcal/d	2062 (1691-2695)	2139 (1646-2852)	2219 (1621-2799)	2334 (1786-2933)	2026 (1590-2573)	2080 (1619-2682)	1872 (1539-2498)	2104 (1617-2457)	1788 (1432-2558)	2005 (1631-2511)	1992 (1596-2595)	1756 (1425-2294)
DASH scores	24 (22-27)	24 (22-26)	24 (21-27)	24 (22-27)	24 (22-27)	24 (22-26)	24 (21-26)	24 (22-26)	24 (21-26)	23 (21-26)	24 (22-27)	24 (22-26)

Abbreviations: DHPPA, 3-(3,5-Dihydroxyphenyl)-1-propanoic acid; DHBA, 3,5-dihydroxybenzoic acid; METS, metabolic equivalent tasks; DASH, dietary approaches to stop

hypertension.

^aVariables were adjusted for age except for age and alkylresorcinols metabolites. Continuous variables were expressed as mean (standard deviation) or median (interquartile range) according to the distribution of the variables, while categorical variables are presented as percentage. *P* values were calculated from the one-way analysis of variance or Kruskal-Wallis test for continuous variables and χ^2 test for categorical variables. First urinary DHPPA: **P* value < 0.05, ***P* value < 0.01; First urinary DHBA: †*P* value < 0.05, ††*P* value <

0.01; Second urinary DHPPA: ‡*P* value < 0.05, ††*P* value < 0.01; Second urinary DHBA: §*P* value < 0.05, §§*P* value < 0.01.

Supplementary Table 2 Subgroup analysis on the association between urinary total alkylresorcinols metabolites and body fat measures in one-year longitudinal repeated-measures in Huoshan, China.

body fat measures	Age		<i>P</i> _{interaction}	Sex		<i>P</i> _{interaction}	Physical activity		<i>P</i> _{interaction}	Total energy intake		<i>P</i> _{interaction}
	<60	≥60		Male	Female		Low ^a	High ^b		Low ^a	High ^b	
No. of participants	460	152		277	335		305	307		306	306	
WC	-0.07 (-0.45, 0.30)	0.07 (-0.78, 0.93)	0.616	-0.05 (-0.43, 0.33)	-0.31 (-0.82, 0.21)	0.881	0.09 (-0.39, 0.56)	-0.56 (-1.13, 0.02)	0.126	-0.08 (-0.70, 0.55)	-0.26 (-0.79, 0.28)	0.687
HC	0.05 (-0.37, 0.48)	-0.38 (-0.96, 0.21)	0.125	-0.03 (-0.48, 0.42)	0.10 (-0.35, 0.54)	0.404	-0.08 (-0.72, 0.57)	-0.44 (-0.84, -0.03)	0.982	-0.01 (-0.35, 0.34)	-0.40 (-1.05, 0.26)	0.797
WHR	-0.47 (-0.75, 0.14)	0.38 (-0.39, 1.15)	0.227	-0.30 (-0.78, 0.19)	-0.39 (-0.95, 0.16)	0.467	0.03 (-0.58, 0.64)	-0.22 (-0.64, 0.19)	0.063	0.05 (-0.47, 0.57)	-0.31 (-0.91, 0.30)	0.379
BMI	-0.16 (-0.47, 0.15)	-0.50 (-1.16, 0.17)	0.099	-0.42 (-0.81, -0.03)	-0.18 (-0.58, 0.21)	0.397	-0.36 (-0.81, 0.09)	-0.41 (-0.98, 0.16)	0.867	-0.40 (-0.89, 0.09)	-0.23 (-0.72, 0.27)	0.559
Weight	-0.22 (-0.50, 0.05)	-0.13 (-0.62, 0.36)	0.953	-0.36 (-0.66, -0.05)	-0.18 (-0.54, 0.18)	0.372	-0.33 (-0.69, 0.02)	-0.33 (-0.80, 0.15)	0.370	-0.45 (-0.94, 0.04)	-0.19 (-0.56, 0.19)	0.270

Abbreviations: WC, waist circumference; HC, hip circumference; WHR, waist to hip ratio; BMI, body mass index.

Data was presented as percentage changes and 95% confidence intervals (CIs) in obesity markers for each 1 µg/g creatinine increase in urinary total alkylresorcinols metabolites, expressed as $(\exp(\beta)-1) \times 100\%$. Covariates adjusted in the model was the same as those in Table 2 (see Table 2 footnote). Of note, variables examined in this table was not adjusted. Variables were log transformed.

^aLow: less than the median; ^bHigh: equal to or greater than the median.

Supplementary Table 3 Subgroup analysis on the association between the average concentrations of urinary total alkylresorcinols metabolites and fat measures after 1-year of follow-up in Huoshan, China.

fat measures	Age		<i>P</i> _{interaction}	Sex		<i>P</i> _{interaction}	Physical activity		<i>P</i> _{interaction}	Total energy intake		<i>P</i> _{interaction}
	<60	≥60		Male	Female		Low ^a	High ^b		Low ^a	High ^b	
No. of participants	227	79		139	167		152	154		153	153	
BFM	-4.15 (-8.07, -0.06)	1.75 (-6.76, 11.04)	0.943	-2.46 (-7.76, 3.13)	-5.70 (-10.48, -0.67)	0.222	-4.23 (-8.89, 0.67)	-3.75 (-8.43, 1.18)	0.668	-4.65 (-9.98, 0.98)	-3.75 (-8.43, 1.18)	0.531
PBF	-1.99 (-4.76, 0.87)	-0.57 (-6.45, 5.68)	0.520	-1.03 (-4.92, 3.01)	-3.97 (-7.05, -0.80)	0.133	-3.03 (-5.96, 0.00)	-2.09 (-5.61, 1.55)	0.313	-2.77 (-6.30, 0.89)	-2.09 (-5.61, 1.55)	0.427
VFL	-6.36 (-11.08, -1.40)	2.88 (-7.37, 14.25)	0.531	-3.44 (-9.50, 3.02)	-7.32 (-13.31, -0.91)	0.264	-5.43 (-11.01, 0.50)	-5.51 (-11.13, 0.47)	0.811	-5.48 (-11.88, 1.39)	-5.51 (-11.13, 0.47)	0.720
CAP	-2.81 (-4.84, -0.73)	1.56 (-2.91, 6.24)	0.208	-2.21 (-4.65, 0.29)	-2.18 (-5.04, 0.77)	0.948	-1.52 (-3.88, 0.91)	-2.88 (-5.29, -0.41)	0.221	-2.48 (-5.25, 0.37)	-2.88 (-5.29, -0.41)	0.627

Abbreviations: BFM, body fat mass; PBF, percent body fat; VFL, visceral fat level; CAP, controlled attenuation parameter.

Data was presented as percentage changes and 95% confidence intervals (CIs) in obesity markers for each 1 µg/g creatinine increase in urinary total alkylresorcinols metabolites, expressed as $(\exp(\beta)-1) \times 100\%$. Covariates adjusted in the model was the same as those in Table 3 (see Table 3 footnote). Of note, variables examined in this table was not adjusted. Variables were log transformed.

^aLow: less than the median; ^bHigh: equal to or greater than the median.