Supplementary Material

Comparison between Different Measures of Body Fat with Kidney Function Decline and Incident CKD

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Table 1. Interactions between adiposity measures with race and sex

	P-value for interaction	
Adiposity measure	**Sex**	**Race**
SAT	0.4	0.6
VAT	0.7	1.0
IMAT	0.9	0.6
WC	0.8	0.2
BMI	0.5	0.5
WHR	0.4	0.4

Table 2. Association of measures of adiposity with kidney function decline using multiple predictors in the same model

	N	ΔeGFR_CysC>30%	Unadjusted	Model 1*	Model 2**
VAT, SAT and IMAT in the same model			OR (95% CI)	OR (95% CI)	OR (95% CI)
Subcutaneous fat	2489	434	1.0 (0.9, 1.2)	1.1 (0.9, 1.2)	1.1 (0.9, 1.3)
Continuous (per SD=121)					
Visceral fat	2489	434	1.2 (1.1, 1.4)	1.2 (1.1, 1.4)	1.1 (1.0, 1.3)
Continuous (per SD=67)					
R Thigh Intermuscular Fat Area (cm-sq)	2489	434	1.1 (1.0, 1.3)	1.1 (1.0, 1.2)	1.0 (0.9, 1.2)
Continuous (per SD=6.8)					
BMI and WC in the same model					
Waist Circumference	2489	434	1.2 (1.1, 1.5)	1.2 (1.0, 1.4)	1.2 (1.0, 1.4)
Continuous (per SD=12.5)					
BMI	2489	434	1.1 (0.9, 1.3)	1.1 (1.0, 1.4)	1.1 (0.9, 1.3)
Continuous (per SD=4.6)					

*Adjusted for age, sex, race and site

**further adjusted for DM, SBP, HTN meds, ACR , smoking, LDL cholesterol, HDL cholesterol, oral estrogen, prevalent CHD, prevalent HF, and CRP.

Table 3. Association of measures of obesity with incident CKD defined by eGFR cystatin C using multiple predictors in the same model

	Unadjusted	Model 1*	Model 2**
VAT, SAT and IMAT in the same model	**IRR (95% CI)**	**IRR (95% CI)**	**IRR (95% CI)**
Subcutaneous fat	1.1 (0.9, 1.2)	1.0 (0.9, 1.1)	1.0 (0.9, 1.1)
Continuous (per SD=121)			
Visceral fat	1.3 (1.2, 1.4)	1.2 (1.1, 1.3)	1.2 (1.1, 1.3)
Continuous (per SD=67)			
R Thigh Intermuscular Fat Area (cm-sq)	1.1 (1.0, 1.2)	1.1 (1.0, 1.2)	1.0 (0.9, 1.1)
Continuous (per SD=6.8)			
BMI and WC in the same model			
Waist Circumference	1.2 (1.1, 1.3)	1.2 (1.0, 1.3)	1.1 (1.0, 1.3)
Continuous (per SD=12.5)			
BMI	1.1 (1.0, 1.3)	1.1 (0.9, 1.3)	1.1 (0.9, 1.2)

*Adjusted for age, sex, race and site **further adjusted for DM, SBP, HTN meds, ACR , smoking, LDL cholesterol, HDL cholesterol, oral estrogen, prevalent CHD, prevalent HF, and CRP.

Table 4. Association of measures of adiposity with kidney function decline defined as cystatin C eGFR >40%

	N	ΔeGFR>40%	Unadjusted	Model 1*	Model 2**
			OR (95% CI)	OR (95% CI)	OR (95% CI)
Subcutaneous fat					
Continuous (per SD=121)	2489	210	1.2 (1.0, 1. 3)	1.3 (1.1, 1.5)	1.2 (1.0, 1.4)
Quartiles					
< 196	621	54	1. (ref)	1.0 (ref)	1. 0 (ref)
196 -- 267	619	42	0.7 (0.5, 1.1)	0.8 (0.5, 1.2)	0.7 (0.5, 1.1)
268 -- 357	633	53	0.9 (0.6, 1.4)	1.1 (0.7, 1.6)	1.0 (0.6, 1.5)
> 357	616	61	1.1 (0.8, 1.7)	1.4 (0.9, 2.1)	1.1 (0.7, 1.7)
Visceral fat					
Continuous (per SD=67)	2489	210	1.2 (1.1, 1.4)	1.2 (1.1, 1.4)	1.1 (0.9, 1.2)
Quartiles					
< 94	618	43	1. 0 (ref)	1.0 (ref)	1.0 (ref)
94 – 132	626	45	1.0 (0.7, 1.6)	1.1 (0.7, 1.7)	1.0 (0.6, 1.5)
133 – 181	625	59	1.4 (0.9, 2.2)	1.5 (1.0, 2.2)	1.2 (0.8, 1.9)
> 181	620	63	1.6(1.0, 2.3)	1.6 (1.1, 2.5)	1.1 (0.7, 1.7)
R Thigh Intermuscular Fat Area (cm-sq)					
Continuous (per SD=6.8)	2481	208	1.3 (1.1, 1.4)	1.3 (1.1, 1.4)	1. 1 (1.0, 1.3)
Quartiles					
< 6.15	631	32	1. 0 (ref)	1.0 (ref)	1.0 (ref)
6.15 – 9.01	641	52	1.7 (1.1, 2.7)	1.7 (1.1, 2.7)	1.7 (1.1, 2.8)
9.02 – 13.12	620	59	2.0 (1.3, 3.2)	2.1 (1.3, 3.3)	1.8 (1.12, 2.9)
> 13.12	589	65	2.4 (1.5, 3.7)	2.4 (1.5, 3.8)	1.8 (1.1, 3.0)
Waist Circumference					
Continuous (per SD=12.5)	2488	210	1.3 (1.2, 1.5)	1.3 (1.2, 1.5)	1.2 (1.0, 1.4)
Quartiles					
< 91.7	616	35	1.0 (ref)	1.0 (ref)	1.0 (ref)
91.7 – 99.2	645	54	1.5 (0.9, 2.3)	1.5(0.9, 2.3)	1.5 (0.9, 2.3)
99.3 – 107.1	631	56	1.6 (1.1, 2.5)	1.6 (1.0, 2.5)	1.5 (0.9, 2.4)
> 107.1	596	65	2.0 (1.3, 3.1)	2.0 (1.3, 3.1)	1.5 (0.9, 2.4)
BMI					
Continuous (per SD=4.6)	2489	210	1.3 (1.1, 1.5)	1.3 (1.1, 1.5)	1.2(1.0, 1.4)
Quartiles					
< 24.1	615	39	1.0 (ref)	1.0 (ref)	1.0 (ref)
24.1 – 26.8	641	44	1.2 (0.7, 1.8)	1.1 (0.7, 1.8)	1.2 (0.7, 1.9)
26.9 – 30.0	638	61	1.7 (1.1, 2.6)	1.6 (1.1, 2.5)	1.4 (0.9, 2.2)
> 30.1	595	66	1.9 (1.2, 2.9)	1.9 (1.2, 2.9)	1.5 (0.9, 2.3)

*Adjusted for age, sex, race and site
**further adjusted for DM, SBP, HTN meds, ACR , smoking, LDL cholesterol, HDL cholesterol, oral estrogen, prevalent CHD, prevalent HF, and CRP. Kidney function decline was defined as eGFR_cysC decline > 40%

Table 5. Association of BMI by WHO criteria with kidney function decline defined by GFR_cysC decline > 30%

	N	ΔeGFR>30%	Unadjusted	Model 1*	Model 2**
			OR (95% CI)	OR (95% CI)	OR (95% CI)
BMI					
WHO cut-points					
< 18.50	26	2	0.5 (0.1, 2.1)	0.5 (0.1, 2.1)	0.6 (0.1, 2.5)
18.50 – 24.99	769	113	1.0 (ref)	1.0 (ref)	1.0 (ref)
25.00 – 29.99	1087	181	1.2 (0.9, 1.5)	1.2 (0.9, 1.5)	1.1 (0.9, 1.5)
≥ 30.00	607	138	1.7 (1.3, 2.2)	1.7 (1.3, 2.3)	1.4 (1.1, 2.0)

*Adjusted for age, gender, race and site

**further adjusted for DM, SBP, HTN meds, ACR , smoking, LDL cholesterol, HDL cholesterol, oral estrogen, prevalent CHD, prevalent HF, and CRP

Table 6. A association of BMI defined by WHO criteria with incident CKD

		N	Inc CKD	Rate (%/yr)	Unadjusted	Model 1*	Model 2**
					IRR (95% CI)	IRR (95% CI)	IRR (95% CI)
BMI							
	WHO cut-points						
	< 18.50	25	2	1.3	0.6 (0.2, 2.5)	0.7 (0.2, 2.4)	0.7 (0.2, 2.6)
	18.50 – 24.99	718	95	2.1	1.0 (ref)	1.0 (ref)	1.0 (ref)
	25.00 – 29.99	1008	165	2.6	1.3 1.9, 1.6)	1.1(0.9, 1.4)	1.1 (0.9, 1.4)
	≥ 30.00	544	130	4.1	1.9 (1.5, 2.5)	1.6 (1.2, 2.0)	1.4 (1.10 1.9)

*Adjusted for age, gender, race, site and baseline eGFR
**further adjusted for DM, SBP, HTN meds, ACR, smoking, LDL cholesterol, HDL cholesterol, oral estrogen, prevalent CHD, prevalent HF and CRP.