Supplemental Table I. Abdominal muscle composition *

Muscle Group	IMAT volume, cm^3		Total volume, cm^3		Normalized IMAT	
	Mean(SD)	Range	Mean(SD)	Range	Mean(SD)	Range
Rectus	1.42(1.06)	0.02, 9.39	7.48(2.43)	2.12, 20.54	0.19(0.13)	0.003, 0.80
Lateral Oblique	3.59(3.12)	0.07, 32.15	29.04(8.99)	11.86, 73.84	0.12(0.07)	0.003, 0.57
Psoas	0.71(0.58)	0.01, 6.00	12.27(4.16)	3.21, 28.49	0.06(0.04)	0.001, 0.36
Paraspinous	3.69(2.55)	0.24, 23.30	33.00(7.26)	12.72, 69.90	0.11(0.07)	0.01, 0.64
Overall	2.35(1.63)	0.21, 15.89	20.45(5.17)	9.98, 41.45	0.11(0.06)	0.01, 0.51

*mean of right and left sides for individual muscle groups and overall mean of all muscle measures from a 10 mm in z-axis length sample center at L3-L4 disk; Normalized IMAT is ratio of IMAT volume to total muscle volume

Supplemental Table II. Correlations between abdominal muscle composition and anthropometric and CT adipose tissue measures

Muscle Group	Measure*	Height	BMI	WC	SAT	VAT	PAT	IMAT Volume				
								Rectus	Lateral Oblique	Psoas	Paraspinous	Overall
Rectus	IMAT	0.03	0.58	0.59	0.51	0.46	0.40	1.00	0.65	0.56	0.59	0.76
	Total	0.44	0.42	0.59	0.19	0.47	0.39	0.40	0.46	0.48	0.32	0.46
	Normal IMAT	-0.16	0.43	0.37	0.46	0.29	0.25	0.86	0.44	0.34	0.46	0.56
Lateral Oblique	IMAT	0.11	0.66	0.71	0.54	0.58	0.52	0.65	1.00	0.71	0.73	0.93
	Total	0.55	0.44	0.66	0.17	0.55	0.47	0.41	0.58	0.49	0.32	0.52
	Normal IMAT	-0.10	0.64	0.62	0.62	0.50	0.43	0.62	0.91	0.63	0.75	0.88
Psoas	IMAT	0.20	0.56	0.66	0.43	0.61	0.53	0.56	0.71	1.00	0.77	0.82
	Total	0.60	0.21	0.43	-0.02	0.32	0.30	0.17	0.22	0.40	0.11	0.21
	Normal IMAT	-0.06	0.55	0.56	0.52	0.55	0.45	0.55	0.68	0.86	0.80	0.80
Paraspinous	IMAT	0.01	0.59	0.59	0.52	0.51	0.43	0.59	0.73	0.77	1.00	0.91
	Total	0.59	0.38	0.58	0.13	0.47	0.41	0.34	0.37	0.41	0.32	0.40
	Normal IMAT	-0.19	0.50	0.44	0.52	0.38	0.32	0.50	0.62	0.64	0.92	0.80
Overall	IMAT	0.08	0.69	0.73	0.58	0.61	0.53	0.76	0.93	0.82	0.91	1.00
	Total	0.62	0.41	0.64	0.14	0.52	0.45	0.38	0.48	0.50	0.31	0.46
	Normal IMAT	-0.17	0.63	0.57	0.63	0.48	0.40	0.69	0.81	0.68	0.88	0.91

*mean IMAT volume (cm^3), total muscle volume (cm^3), and normalized IMAT (ratio of IMAT volume/total muscle volume) of right and left sides and overall for all muscle groups; Correlations statistically significant at $p<.001$ except for rectus IMAT and height, paraspinous IMAT and height, and psoas total and SAT (all $p>0.05$).“Normal IMAT”: normalized IMAT = IMAT to total muscle ratio

Supplemental Table III. Logistic regression models for association of overall IMAT volume and normalized overall IMAT with CAC prevalence in 2,661 non-diabetics [Odds Ratio(95% Confidence Interval)]

Measure	Quartile	CAC (cases/total)	Model 1	Model 2	Model 2 plus BMI	Model 2 plus VAT	Model 2 plus PAT
IMAT Volume	<1.23	132 / 666	reference	reference	reference	reference	reference
	1.23- <1.82	157 / 663	1.11 (0.84,1.46)	1.03 (0.77,1.37)	1.03(0.77,1.39)	1.07(0.80,1.43)	1.02(0.76,1.36)
	1.82 - <2.77	189 / 667	**1.37 (1.04,1.80)**	1.24 (0.93,1.66)	1.25(0.92,1.69)	1.35(0.99,1.84)	1.22(0.91,1.65)
	≥2.77	230 / 665	**1.87 (1.43,2.46)**	**1.57 (1.16,2.13)**	**1.60(1.13,2.29)**	**1.80(1.27,2.56)**	**1.50(1.07,2.09)**
		P_{trend}	<0.0001	0.005	0.004	0.001	0.011
	Continuous		1.29 (1.17,1.43)*	1.20 (1.07,1.35)	1.24 (1.07,1.45)	1.26 (1.10,1.43)	1.18(1.04,1.33)
Normalized IMAT	<0.066	176 / 666	Reference	reference	Reference	reference	reference
	0.066- <0.095	157 / 668	0.99 (0.76,1.30)	0.90(0.68,1.19)	0.90 (0.68,1.19)	0.93 (0.70,1.24)	0.89(0.67,1.18)
	0.095- <0.138	179 / 662	1.26 (0.96,1.66)	1.11(0.84,1.49)	1.11 (0.83,1.50)	1.18 (0.87,1.61)	1.08(0.80,1.45)
	≥0.138	196 / 665	**1.84 (1.38,2.43)**	**1.54(1.13,2.09)**	**1.54 (1.09,2.18**)	**1.67 (1.18,2.37)**	**1.45(1.04,2.03)**
		P_{trend}	<0.0001	0.003	0.010	0.001	0.018
	Continuous		1.30 (1.18,1.44)	1.19 (1.06,1.34)	1.20 (1.05,1.39)	1.24 (1.09,1.41)	1.16(1.03,1.32)

Prevalence based 0 or >0 Agatston Units; normalized IMAT = IMAT volume/total muscle volume ratio
Model 1: age, sex, race, sex*race, center, height (except when BMI is included), and education; Model 2: model 1 + physical activity, alcohol consumed, smoking history, systolic BP, BP med use, HDL cholesterol, triglycerides, cholesterol med use, CRP, and HOMA-IR.
*estimate per SD IMAT volume (1.46 cm^3) or normalized IMAT (0.06 cm^3); **Bold** indicates odds ratio differs significantly (p<.05) from quartile 1 (reference). P_{trend} is based on modeling continuous IMAT.

Supplemental Table IV. Logistic regression models for association of IMAT volume by muscle group with CAC prevalence [Odds Ratio(95% Confidence Interval)]

Muscle Group	Quartile	CAC (cases/total)	Model 1	Model 2	Model 2 plus BMI	Model 2 plus VAT	Model 2 plus PAT
Rectus	1	170 / 762	reference	reference	reference	reference	reference
	2	193 / 765	1.02(0.80,1.32)	0.96(0.74,1.25)	0.95(0.73,1.23)	0.96(0.74,1.26)	0.94(0.72,1.23)
	3	226 / 761	1.22(0.95,1.56)	1.05(0.81,1.37)	1.02(0.78,1.34)	1.06(0.81,1.39)	1.02(0.78,1.33)
	4	273 / 762	**1.67(1.30,2.13)**	**1.35(1.04,1.76)**	1.28(0.95,1.71)	**1.36(1.02,1.82)**	1.28(0.97,1.70)
		P_{trend}	<0.0001	0.036	0.146	0.049	0.643
Lateral Oblique	1	148 / 763	reference	reference	reference	reference	reference
	2	213 / 762	1.29(0.99,1.66)	1.17(0.90,1.52)	1.15(0.88,1.50)	1.18(0.90,1.53)	1.16(0.88,1.51)
	3	219 / 764	1.21(0.93,1.56)	1.01(0.77,1.32)	0.97(0.73,1.29)	1.02(0.77,1.37)	0.97(0.73,1.29)
	4	282 / 762	**1.88(1.46,2.42)**	**1.41(1.07,1.89)**	1.31(0.94,1.82)	**1.46(1.05,2.02)**	1.31(0.96,1.80)
		P_{trend}	<0.0001	0.026	0.115	0.035	0.250
Psoas	1	152 / 762	reference	reference	reference	reference	reference
	2	191 / 765	1.12(0.87,1.45)	1.03(0.79,1.35)	1.02(0.78,1.33)	1.05(0.80,1.38)	1.03(0.79,1.35)
	3	223 / 762	1.24(0.97,1.60)	1.08(0.82,1.41)	1.04(0.79,1.38)	1.11(0.84,1.46)	1.05(0.79,1.39)
	4	296 / 761	**1.80(1.40,2.31)**	**1.37(1.04,1.81)**	1.29(0.94,1.76)	**1.44(1.05,1.99)**	1.28(0.93,1.76)
		P_{trend}	<0.0001	0.071	0.296	0.084	0.441
Paraspinous	1	178 / 762	reference	reference	reference	reference	reference
	2	204 / 763	1.28(0.99,1.64)	1.14(0.88,1.48)	1.14(0.88,1.47)	1.16(0.89,1.51)	1.14(0.87,1.48)
	3	205 / 764	**1.29(1.00,1.66)**	1.13(0.86,1.47)	1.12(0.85,1.47)	1.17(0.89,1.54)	1.10(0.85,1.46)
	4	275 / 762	**2.08(1.62,2.67)**	**1.65(1.26,2.15)**	**1.63(1.21,2.20)**	**1.75(1.30,2.35)**	**1.58(1.15,2.15)**
		P_{trend}	<0.0001	0.001	0.007	0.001	0.003

Prevalence based 0 or >0 Agatston Units

Model 1: age, sex, race, sex*race, center, height (except when BMI is included), and education; Model 2: model 1 + physical activity, smoking history, diabetes, systolic BP, BP med use, total cholesterol, HDL cholesterol, triglycerides, cholesterol med use, and CRP. **Bold** indicates odds ratio differs significantly from quartile 1 (reference). P_{trend} is based on modeling continuous IMAT.

Supplemental Table V. Logistic regression models for association of normalized IMAT by muscle group with CAC prevalence [Odds Ratio(95% Confidence Interval)]

Muscle Group	Quartile	CAC (cases/total)	Model 1	Model 2	Model 2 plus BMI	Model 2 plus VAT	Model 2 plus PAT
Rectus	1	211 / 762	reference	reference	reference	reference	reference
	2	193 / 762	0.84(0.66,1.08)	0.79(0.61,1.02)	0.77(0.60,1.00)	0.78(0.61,1.01)	0.77(0.60,1.00)
	3	223 / 763	1.13(0.89,1.44)	1.00(0.78,1.29)	0.97(0.75,1.25)	0.99(0.76,1.29)	0.96(0.74,1.24)
	4	235 / 763	**1.37(1.07,1.75)**	1.17(0.90,1.51)	1.09(0.83,1.44)	1.15(0.87,1.51)	1.11(0.84,1.44)
		P_{trend}	0.002	0.027	0.057	0.034	0.486
Lateral Oblique	1	189 / 762	reference	reference	reference	reference	reference
	2	211 / 762	1.17(0.92,1.50)	1.03(0.80,1.34)	1.03(0.79,1.33)	1.05(0.81,1.36)	1.02(0.79,1.32)
	3	220 / 764	1.28(0.99,1.64)	1.11(0.86,1.45)	1.09(0.83,1.43)	1.14(0.86,1.51)	1.08(0.82,1.42)
	4	242 / 763	**1.82(1.41,2.33)**	**1.42(1.08,1.86)**	1.35(0.99, 1.84)	**1.47(1.08,2.01)**	1.33(0.98,1.81)
		P_{trend}	<0.0001	0.047	0.214	0.058	0.058
Psoas	1	176 / 761	reference	reference	reference	reference	reference
	2	222 / 765	**1.36(1.06,1.74)**	1.17(0.90,1.52)	1.15(0.89,1.50)	1.19(0.91,1.55)	1.14(0.88,1.49)
	3	208 / 762	1.24(0.96,1.59)	1.05(0.79,1.37)	1.02(0.77,1.34)	1.07(0.81,1.43)	1.02(0.76,1.35)
	4	256 / 763	**1.92(1.49,2.48)**	**1.46(1.11,1.93)**	**1.38(1.01,1.87)**	**1.53(1.11,2.12)**	1.35(0.97,1.88)
		P_{trend}	<0.0001	0.023	0.093	0.028	0.167
Paraspinous	1	216 / 763	reference	reference	reference	reference	reference
	2	198 / 763	1.14(0.89,1.46)	0.99(0.77,1.28)	0.98(0.76,1.28)	1.00(0.77,1.30)	0.98(0.75,1.28)
	3	205 / 762	**1.33(1.03,1.72)**	1.22(0.94,1.59)	1.20(0.92,1.57)	1.25(0.95,1.65)	1.18(0.89,1.57)
	4	243 / 763	**1.90(1.46,2.47)**	**1.51(1.14,1.99)**	**1.45(1.07,1.97)**	**1.57(1.16,2.12)**	**1.42(1.02,1.97)**
		P_{trend}	<0.0001	0.007	0.037	0.009	0.003

Prevalence based 0 or >0 Agatston Units; normalized IMAT = IMAT volume/total muscle volume ratio
Model 1: age, sex, race, sex*race, center, height (except when BMI is included), and education; Model 2: model 1 + physical activity, smoking history, diabetes, systolic BP, BP med use, total cholesterol, HDL cholesterol, triglycerides, cholesterol med use, and CRP. **Bold** indicates odds ratio differs significantly from quartile 1 (reference). P_{trend} is based on modeling continuous IMAT.