

Table S1 Baseline clinical characteristics of young and middle-aged patients with metabolic syndrome

Characteristic	All (n=112)	Female (n=85)	Male (n=27)	P value
Glycated hemoglobin (%)	7.34±1.69	7.35±1.82	7.29±1.23	0.854
Fasting plasma glucose (mmol/L)	7.93±2.94	7.75±2.94	8.49±2.91	0.256
2-hour postprandial glucose (mmol/L)	13.75±5.35	13.77±5.37	13.69±5.37	0.942
Fasting insulin C-peptide (ng/mL)	3.57±1.33	3.37±1.23	4.17±1.47	0.006*
Fasting insulin (uIU/mL)	25.24±23.22	23.32±12.73	31.29±41.58	0.335
Total cholesterol (mmol/L)	4.91±0.97	4.94±0.91	4.83±1.16	0.590
Total triglycerides (mmol/L)	2.55±2.16	2.35±1.83	3.20±2.92	0.163
High-density lipoprotein cholesterol (mmol/L)	1.02±0.21	1.05±0.22	0.93±0.15	0.002*
Low-density lipoprotein cholesterol (mmol/L)	3.41±0.86	3.45±0.85	3.31±0.89	0.479
Total calcium (mmol/L)	2.36±0.10	2.35±0.11	2.39±0.08	0.048*

Data are presented as mean ± standard error of the mean. *, P<0.05.

Table S2 Correlation analysis of bone BMPs and clinical indicators in young and middle-aged patients with metabolic syndrome

Pearson coefficient	Average Ca (water) BMPs		Average HAP (water) BMPs	
	Correlation	P value	Correlation	P value
Glycated hemoglobin (%)	0.062	0.515	0.073	0.446
Fasting plasma glucose (mmol/L)	0.100	0.295	0.117	0.220
2-hour postprandial glucose (mmol/L)	0.073	0.443	0.079	0.405
Fasting insulin C-peptide (ng/mL)	-0.092	0.333	-0.116	0.223
Fasting insulin (uIU/mL)	-0.025	0.796	-0.033	0.731
Total cholesterol (mmol/L)	0.064	0.503	0.057	0.553
Total triglycerides (mmol/L)	0.153	0.106	0.152	0.109
High-density lipoprotein cholesterol (mmol/L)	-0.083	0.382	-0.101	0.287
Low-density lipoprotein cholesterol (mmol/L)	0.019	0.843	0.019	0.840
Total calcium (mmol/L)	0.025	0.797	0.014	0.885

BMPs, base material pair; Ca, calcium; HAP, hydroxyapatite.

Table S3 Correlation analysis of bone BMPs and fat volume in young and middle-aged patients with metabolic syndrome of different sexes

Characteristic	TAF	AVF	ASF	VF/SF ratio
Female sex (n=85)				
Ca (water) BMPs	-0.403**	-0.256*	-0.385**	0.137
HAP (water) BMPs	-0.398**	-0.264*	-0.375**	0.105
Male (n=27)				
Ca (water) BMPs	-0.311	-0.314	-0.259	0.072
HAP (water) BMPs	-0.377	-0.384	-0.311	0.083

***P*<0.01; **P*<0.05. BMP, base material pair; TAF, total abdominal fat; AVF, abdominal visceral fat; ASF, abdominal subcutaneous fat; VF/SF ratio, the ratio of visceral fat to subcutaneous fat volume; Ca, calcium; HAP, hydroxyapatite.

Table S4 Univariate analysis of factors associated with bone BMPs in young and middle-aged patients with metabolic syndrome

Characteristic	B (95% CI)	Standardized coefficient	P
Ca (water) BMPs			
TAF volume	-0.002 (-0.003, -0.001)	-0.371	<0.001
AVF volume	-0.006 (-0.008, -0.004)	-0.499	<0.001
ASF volume	-0.001 (-0.003, 0.000)	-0.161	0.090
HAP (water) BMPs			
TAF volume	-0.005 (-0.007, -0.003)	-0.374	<0.001
AVF volume	-0.014 (-0.018, -0.009)	-0.511	<0.001
ASF volume	-0.003 (-0.006, 0.001)	-0.156	0.100

BMP, base material pair; CI, confidence interval; Ca, calcium; TAF, total abdominal fat; AVF, abdominal visceral fat; ASF, abdominal subcutaneous fat; HAP, hydroxyapatite.