**Supplement Table 1** Stratified subgroup analysis between METS-IR index and BMD.

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| **Independent variables** | **Per-SD increase β(95% CI)**  | **P for interaction** | 　 | **Quartile β (95% CI)**  |
| **Q1**  | **Q2** | **Q3** | **Q4** |
| **Total femur BMD** | 　 |  | 　 | 　 | 　 | 　 | 　 |
| Stratified by gender |  | >0.05 |  |  |  |  |  |
|  Male  | 0.056 (0.051, 0.061)  |  |  | Reference | 0.038 (0.023, 0.054)  | 0.083 (0.067, 0.098)  | 0.140 (0.125, 0.155)  |
|  Female  | 0.066 (0.060, 0.071)  |  |  | Reference | 0.063 (0.048, 0.078)  | 0.105 (0.090, 0.120)  | 0.160 (0.145, 0.175)  |
| Stratified by age  |  | >0.05 |  |  |  |  |  |
|  <50 | 0.056 (0.051, 0.062)  |  |  | Reference | 0.056 (0.042, 0.070)  | 0.091 (0.076, 0.105)  | 0.140 (0.125, 0.155)  |
|  ≥50 | 0.066 (0.060, 0.071)  |  |  | Reference | 0.044 (0.029, 0.060)  | 0.099 (0.083, 0.114)  | 0.163 (0.148, 0.179)  |
| Stratified by hypertension  |  | >0.05 |  |  |  |  |  |
|  No | 0.058 (0.053, 0.063)  |  |  | Reference | 0.059 (0.046, 0.072)  | 0.095 (0.082, 0.108)  | 0.147 (0.133, 0.160)  |
|  Yes  | 0.064 (0.058, 0.069)  |  |  | Reference | 0.034 (0.016, 0.053) | 0.090 (0.072, 0.108)  | 0.155 (0.138, 0.173)  |
| Stratified by diabetes |  | >0.05 |  |  |  |  |  |
|  No | 0.060 (0.055, 0.064)  |  |  | Reference | 0.052 (0.041, 0.064)  | 0.094 (0.082, 0.105)  | 0.148 (0.137, 0.160)  |
|  Yes  | 0.065 (0.056, 0.074)  |  |  | Reference | 0.045 (0.017, 0.074) | 0.096 (0.067, 0.124)  | 0.161 (0.133, 0.188)  |
| **Femur neck BMD** |  |  |  |  |  |  |  |
| Stratified by gender |  | >0.05 |  |  |  |  |  |
|  Male  | 0.045 (0.040, 0.050)  |  |  | Reference | 0.014 (-0.002, 0.029 | 0.051 (0.035, 0.066)  | 0.105 (0.090, 0.120)  |
|  Female  | 0.053 (0.048, 0.059)  |  |  | Reference | 0.038 (0.023, 0.053)  | 0.070 (0.055, 0.085)  | 0.125 (0.110, 0.141)  |
| Stratified by age  |  | >0.05 |  |  |  |  |  |
|  <50 | 0.045 (0.040, 0.050)  |  |  | Reference | 0.035 (0.021, 0.050)  | 0.065 (0.051, 0.080)  | 0.107 (0.092, 0.122)  |
|  ≥50 | 0.053 (0.048, 0.059)  |  |  | Reference | 0.013 (-0.003, 0.029) | 0.054 (0.038, 0.070)  | 0.124 (0.109, 0.140)  |
| Stratified by hypertension  |  | >0.05 |  |  |  |  |  |
|  No | 0.047 (0.042, 0.052)  |  |  | Reference | 0.033 (0.020, 0.047)  | 0.065 (0.052, 0.078)  | 0.113 (0.099, 0.126)  |
|  Yes  | 0.051 (0.045, 0.057)  |  |  | Reference | 0.011 (-0.008, 0.030) | 0.050 (0.031, 0.068)  | 0.118 (0.100, 0.136)  |
| Stratified by diabetes |  | >0.05 |  |  |  |  |  |
|  No | 0.048 (0.044, 0.052)  |  |  | Reference | 0.026 (0.014, 0.037)  | 0.060 (0.049, 0.072)  | 0.114 (0.102, 0.125)  |
|  Yes  | 0.054 (0.045, 0.063)  |  |  | Reference | 0.032 (0.003, 0.061) | 0.064 (0.036, 0.093)  | 0.127 (0.099, 0.155)  |
| **Total spine BMD** |  |  |  |  |  |  |  |
| Stratified by gender |  | >0.05 |  |  |  |  |  |
|  Male  | 0.039 (0.034, 0.044)  |  |  | Reference | 0.038 (0.023, 0.053)  | 0.062 (0.047, 0.076)  | 0.108 (0.093, 0.122)  |
|  Female  | 0.041 (0.035, 0.047)  |  |  | Reference | 0.064 (0.049, 0.078)  | 0.067 (0.052, 0.082)  | 0.107 (0.092, 0.122)  |
| Stratified by age  |  | >0.05 |  |  |  |  |  |
|  <50 | 0.034 (0.029, 0.039)  |  |  | Reference | 0.050 (0.037, 0.064)  | 0.058 (0.045, 0.072)  | 0.093 (0.079, 0.107)  |
|  ≥50 | 0.047 (0.041, 0.052)  |  |  | Reference | 0.052 (0.036, 0.068)  | 0.071 (0.055, 0.087)  | 0.126 (0.110, 0.141)  |
| Stratified by hypertension  |  | >0.05 |  |  |  |  |  |
|  No | 0.036 (0.031, 0.040)  |  |  | Reference | 0.052 (0.040, 0.065)  | 0.055 (0.043, 0.068)  | 0.095 (0.082, 0.109)  |
|  Yes  | 0.047 (0.041, 0.053)  |  |  | Reference | 0.046 (0.028, 0.065)  | 0.080 (0.062, 0.099)  | 0.131 (0.113, 0.148)  |
| Stratified by diabetes |  | >0.05 |  |  |  |  |  |
|  No | 0.040 (0.035, 0.044)  |  |  | Reference | 0.052 (0.040, 0.063)  | 0.062 (0.051, 0.074)  | 0.107 (0.095, 0.118)  |
|  Yes  | 0.041 (0.032, 0.050)  |  |  | Reference | 0.051 (0.023, 0.079) | 0.075 (0.047, 0.103)  | 0.115 (0.088, 0.143)  |

β, partial regression coefficient; CI, confidence interval; BMD, bone mineral density. In the subgroup analysis stratified by each covariate, all the models were adjusted for gender, age, race, education, marital status, smoking, activity, hypertension, diabetes, serum calcium, serum uric acid, blood urea nitrogen, total cholesterol, taking insulin or glucose-lowering drugs, taken prednisone or cortisone, ever had osteoporosis, but does not have an adjustment for the stratification variable itself.