

Supplement Table 4. Micro-CT analysis of cortical regions of femora.

	AIN76A	AIN76A+AQ	HFWD	HFWD+AQ
5 Months				
Bone mineral content (mg)	3.5 ± 0.2 ^c	3.7 ± 0.3	3.1 ± 0.2	3.7 ± 0.2 ^{a, b}
Bone mineral density (mg/cc)	295 ± 24	302 ± 23	276 ± 19	300 ± 24
Tissue mineral density (mg/cc)	1086 ± 25 ^c	1083 ± 25	1009 ± 21	1073 ± 13 ^a
Mean thickness (mm)	0.190 ± 0.007 ^c	0.193 ± 0.005	0.173 ± 0.009	0.193 ± 0.005 ^a
Polar moment of inertia (mm ⁴)	0.112 ± 0.010	0.132 ± 0.018 ^d	0.116 ± 0.015	0.125 ± 0.010 ^b
Endosteal perimeter (mm)	4.0 ± 0.2	4.1 ± 0.2	3.9 ± 0.1	4.2 ± 0.2 ^{a, b}
Periosteal perimeter (mm)	5.3 ± 0.3	5.4 ± 0.3	5.3 ± 0.3	5.6 ± 0.3
Marrow area (mm ²)	0.98 ± 0.05	1.11 ± 0.07 ^d	1.02 ± 0.05	1.07 ± 0.07 ^b
Cross sectional area (mm ²)	0.77 ± 0.03 ^c	0.82 ± 0.04 ^d	0.71 ± 0.04	0.81 ± 0.03 ^{a, b}
Total area (mm ²)	1.75 ± 0.07	1.93 ± 0.10 ^d	1.73 ± 0.06	1.88 ± 0.09 ^{a, b}
12 Months				
Bone mineral content (mg)	4.2 ± 0.4 ^c	4.1 ± 0.2	3.7 ± 0.3	4.2 ± 0.3 ^a
Bone mineral density (mg/cc)	292 ± 24 ^c	270 ± 25	247 ± 30	282 ± 18 ^a
Tissue mineral density (mg/cc)	1063 ± 30 ^c	1086 ± 17 ^d	1034 ± 16	1074 ± 24 ^a
Mean thickness (mm)	0.199 ± 0.012 ^c	0.198 ± 0.006	0.168 ± 0.011	0.193 ± 0.014 ^a
Polar moment of inertia (mm ⁴)	0.145 ± 0.015	0.152 ± 0.013	0.160 ± 0.021	0.163 ± 0.020
Endosteal perimeter (mm)	4.2 ± 0.2	4.2 ± 0.1	4.4 ± 0.3	4.5 ± 0.2 ^b
Periosteal perimeter (mm)	5.5 ± 0.2 ^c	5.5 ± 0.2	5.9 ± 0.4	5.8 ± 0.3
Marrow area (mm ²)	1.13 ± 0.07 ^c	1.17 ± 0.04	1.25 ± 0.13	1.28 ± 0.10 ^b
Cross sectional area (mm ²)	0.86 ± 0.07 ^c	0.87 ± 0.04	0.76 ± 0.05	0.88 ± 0.07 ^a
Total area (mm ²)	1.99 ± 0.12	2.04 ± 0.08	2.01 ± 0.14	2.15 ± 0.12 ^{a, b}
18 Months				
Bone mineral content (mg)	4.2 ± 0.4 ^c	4.2 ± 0.4	3.5 ± 0.5	4.2 ± 0.4 ^a
Bone mineral density (mg/cc)	305 ± 39 ^c	301 ± 28	257 ± 31	292 ± 23 ^a
Tissue mineral density (mg/cc)	1081 ± 16 ^c	1112 ± 14 ^d	1042 ± 33	1118 ± 24 ^{a, b}
Mean thickness (mm)	0.186 ± 0.012 ^c	0.189 ± 0.015	0.146 ± 0.021	0.181 ± 0.012 ^a
Polar moment of inertia (mm ⁴)	0.155 ± 0.014	0.170 ± 0.020	0.168 ± 0.021	0.175 ± 0.033
Endosteal perimeter (mm)	4.6 ± 0.2 ^c	4.5 ± 0.2 ^d	4.9 ± 0.2	4.6 ± 0.2 ^a
Periosteal perimeter (mm)	5.9 ± 0.3	5.7 ± 0.2 ^d	6.0 ± 0.3	5.8 ± 0.3 ^a
Marrow area (mm ²)	1.26 ± 0.07 ^c	1.33 ± 0.06 ^d	1.58 ± 0.12	1.46 ± 0.09 ^{a, b}
Cross sectional area (mm ²)	0.84 ± 0.05 ^c	0.87 ± 0.07	0.72 ± 0.10	0.87 ± 0.07 ^a
Total area (mm ²)	2.10 ± 0.08 ^c	2.20 ± 0.09 ^d	2.30 ± 0.14	2.33 ± 0.14 ^b

Each femur was subjected to micro-CT at cortical ROI— mid-diaphysis. With each bone, ten cortical parameters were assessed. Values are means and standard deviation. Statistical significance was determined by ANOVA followed by paired group comparisons ($p < 0.05$). “a” and “b” are placed on the HFWD+AQ group; “a” shows statistically significant difference relative to the HFWD group, “b” shows statistically significant difference relative to AIN76A; “c” is placed on the AIN76A shows significant difference relative to the HFWD and “d” is placed on the AIN76A+AQ shows significant difference relative to AIN76A. Data are based on 10 male mice in each diet group at 5 and 12 months while 15 mice at 18 months.