|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bone Parameters | Virgin | | | | Lactation | | | |
| WT | | KO | | WT | | KO | |
| **Femoral cortical bone parameters** | | | | | | | | |
| Ct. B. Ar/T. Ar (%) | 47.4 ± 1.2 | | 48 ± 1 | | 35.2 ± 1.8**a** | | 37.5 ± 1.8**b**, **c** | |
| Ct. Th (mm) | 0.18 ± 0.004 | | 0.19 ± 0.005 | | 0.13 ± 0.004**a** | | 0.14 ± 0.01**b**, **c** | |
| Ps. Pm (mm) | 5.16 ± 0.2 | | 5.2 ± 0.06 | | 5.18 ± 0.16 | | 5.2 ± 0.14 | |
| Es. Pm (mm) | 3.95 ± 0.1 | | 4 ± 0.13 | | 4.4 ± 0.11a | | 4.3 ± 0.09b | |
| Marrow cavity area (mm2) | 0.93 ± 0.1 | | 0.93 ± 0.04 | | 1.16 ± 0.05a | | 1.13 ± 0.05b | |
| **Femoral trabecular bone parameters** | | | | | | | | |
| BV/TV (%) | 3.7 ± 1 | | 4.5 ± 0.8 | | 3.1 ± 0.7 | | 4 ± 1.1 | |
| Tb. Th (mm) | 0.043 ± 0.002 | | 0.044 ± 0.001 | | 0.039 ± 0.002a | | 0.039 ± 0.001b | |
| Tb. Sp (mm) | 0.37 ± 0.05 | | 0.36 ± 0.03 | | 0.57 ± 0.15a | | 0.44 ± 0.09 | |
| Tb. N (1/mm) | 0.85 ± 0.2 | | 1.06 ± 0.2 | | 0.8 ±0.2 | | 1.04 ± 0.25 | |
| Bone parameters | | Change | | % Change | | | |
| WT | | KO | |
| Cortical Bone Area Fraction | | Decrease | | 26% | | 22% \* | |
| Cortical Thickness | | Decrease | | 29% | | 24% \* | |
| Ultimate Force | | Decrease | | 38% | | 31% \* | |
| Osteoclast Number/ bone parameter | | Increase | | 141% | | 129% | |
| TRAP-positive osteocytes | | Increase | | 101% | | 175% \* | |
| Lacunar Area | | Increase | | 26% | | 15% \* | |
| Serum RANKL | | Increase | | 170% | | 80% \* | |

**Supplementary Table 1: FNDC5 KO mice femurs are partially resistant to lactation-induced bone loss.**

Femoral cortical and trabecular bone parameters of WT and FNDC5 KO female virgin and lactation mice. n = 5-8/group. Data presented as mean ± standard deviation. a= significant compared to WT control, b= significant compared to KO control, c= significant compared to WT low Ca diet, 2-way ANOVA, significance <0.05, n= 8/group.

Percentage change in different bone and serum parameters in WT and FNDC5 KO female mice with lactation. \*= p<0.05 compared to WT.