Analysis for Bone Health Manuscript

Tim Vigers & Laura Pyle

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## Table 1a

Descriptive statistics by diabetic status. Normal variables were compared using an unpaired t-test, and non-normal variables were compared using the Kruskal-Wallis Rank Sum Test (test = “nonnorm”). Categorical variables were compared using a chi-squared test, and low-count variables were compared using Fisher’s Exact Test (test = “exact”).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | No | Yes | p | test |
| n | 22 | 24 |  |  |
| ACR (median [IQR]) | 7.20 [4.57, 10.75] | 5.20 [3.83, 11.71] | 0.601 | nonnorm |
| Age (mean (sd)) | 63.29 (5.96) | 60.86 (5.45) | 0.157 |  |
| BMI (mean (sd)) | 25.03 (4.04) | 26.88 (5.03) | 0.180 |  |
| calc (mean (sd)) | 1285.90 (831.13) | 1311.52 (661.07) | 0.922 |  |
| CalciumCorrected (mean (sd)) | 9.26 (0.33) | 9.22 (0.22) | 0.600 |  |
| CTX1 (median [IQR]) | 0.38 [0.29, 0.61] | 0.30 [0.21, 0.47] | 0.061 | nonnorm |
| eGFR (median [IQR]) | 75.30 [66.48, 87.33] | 77.55 [68.80, 90.45] | 0.344 | nonnorm |
| FractureQty (median [IQR]) | 2.00 [1.00, 2.00] | 1.00 [1.00, 2.50] | 0.847 | nonnorm |
| HbA1c (median [IQR]) | 5.50 [5.30, 5.70] | 7.70 [7.25, 8.10] | <0.001 | nonnorm |
| IGF1 (mean (sd)) | 57.66 (34.29) | 43.71 (21.98) | 0.125 |  |
| InsulinDose (median [IQR]) | NA [NA, NA] | 0.43 [0.33, 0.54] | NA | nonnorm |
| LengthR (mean (sd)) | 250.09 (11.82) | 246.57 (14.15) | 0.371 |  |
| LengthT (mean (sd)) | 405.30 (28.32) | 379.83 (25.66) | 0.003 |  |
| Muscle\_A (median [IQR]) | 5827.76 [4917.68, 6115.68] | 6024.32 [5440.80, 6311.20] | 0.266 | nonnorm |
| IMAT (median [IQR]) | 1498.72 [1269.08, 1731.32] | 1625.44 [1435.52, 1763.68] | 0.312 | nonnorm |
| Menopause\_yrs (median [IQR]) | 13.50 [6.50, 21.75] | 10.00 [7.00, 14.25] | 0.209 | nonnorm |
| Osteocalcin.1 (median [IQR]) | 39380.81 [33263.50, 46323.51] | 34822.05 [26640.44, 41165.37] | 0.112 | nonnorm |
| P1NP (median [IQR]) | 43.26 [31.38, 68.74] | 57.82 [22.74, 102.34] | 0.903 | nonnorm |
| PhosphorusSerum (median [IQR]) | 3.80 [3.70, 4.07] | 3.80 [3.58, 4.00] | 0.851 | nonnorm |
| PTH (mean (sd)) | 39.68 (17.01) | 36.12 (10.74) | 0.398 |  |
| T1DDuration (mean (sd)) | NaN (NA) | 41.70 (9.08) | NA |  |
| TtlFatMass (mean (sd)) | 25965.99 (8598.11) | 27987.99 (8264.85) | 0.454 |  |
| TtlFatPerc (mean (sd)) | 39.46 (6.78) | 39.47 (5.78) | 0.995 |  |
| TtlLeanMass (mean (sd)) | 36248.38 (3913.14) | 39723.41 (4918.32) | 0.020 |  |
| UCa\_Cr (median [IQR]) | 0.08 [0.05, 0.12] | 0.08 [0.03, 0.12] | 0.742 | nonnorm |
| VitD (median [IQR]) | 27.36 [20.73, 31.44] | 25.36 [22.97, 32.45] | 0.884 | nonnorm |
| FractureBone = TRUE (%) | 10 (45.5) | 19 (79.2) | 0.039 |  |
| HipNeither = TRUE (%) | 19 (86.4) | 18 (75.0) | 0.550 |  |
| HipParent = TRUE (%) | 1 ( 4.5) | 5 (20.8) | 0.190 | exact |
| HRT\_ever = TRUE (%) | 11 (50.0) | 11 (45.8) | 1.000 |  |
| HTN = TRUE (%) | 7 (31.8) | 14 (58.3) | 0.132 |  |
| Statin = TRUE (%) | 3 (13.6) | 12 (50.0) | 0.012 | exact |
| Nephropathy = TRUE (%) | 0 ( 0.0) | 4 (16.7) | 0.110 | exact |
| Neuropathy = TRUE (%) | 3 (15.8) | 8 (38.1) | 0.163 | exact |
| Retinopathy = TRUE (%) | 0 ( NaN) | 11 (45.8) | 1.000 | exact |

## Table 1b

Descriptive statistics by age at diagnosis. Normal variables were compared using an unpaired t-test, and non-normal variables were compared using the Kruskal-Wallis Rank Sum Test (test = “nonnorm”). Categorical variables were compared using a chi-squared test, and low-count variables were compared using Fisher’s Exact Test (test = “exact”).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Greater than 20 | Less than 20 | p | test |
| n | 9 | 15 |  |  |
| ACR (median [IQR]) | 5.54 [3.45, 8.19] | 4.86 [4.23, 12.88] | 0.867 | nonnorm |
| Age (mean (sd)) | 64.99 (4.79) | 58.39 (4.25) | 0.002 |  |
| BMI (mean (sd)) | 25.38 (2.76) | 27.77 (5.91) | 0.268 |  |
| calc (mean (sd)) | 1202.80 (886.01) | 1370.82 (543.83) | 0.632 |  |
| CalciumCorrected (mean (sd)) | 9.35 (0.26) | 9.13 (0.15) | 0.016 |  |
| CTX1 (median [IQR]) | 0.26 [0.13, 0.35] | 0.38 [0.24, 0.49] | 0.217 | nonnorm |
| eGFR (median [IQR]) | 68.80 [58.70, 75.80] | 79.30 [77.55, 99.85] | 0.005 | nonnorm |
| FractureQty (median [IQR]) | 1.00 [1.00, 1.75] | 1.00 [1.00, 3.00] | 0.612 | nonnorm |
| HbA1c (median [IQR]) | 8.00 [7.30, 8.10] | 7.60 [7.23, 8.25] | 0.850 | nonnorm |
| IGF1 (mean (sd)) | 43.85 (13.96) | 43.60 (27.14) | 0.980 |  |
| InsulinDose (median [IQR]) | 0.40 [0.29, 0.50] | 0.44 [0.38, 0.55] | 0.355 | nonnorm |
| LengthR (mean (sd)) | 243.00 (8.54) | 248.86 (16.72) | 0.344 |  |
| LengthT (mean (sd)) | 372.44 (18.02) | 384.27 (28.99) | 0.284 |  |
| Muscle\_A (median [IQR]) | 6245.60 [5610.08, 6311.20] | 5905.76 [5414.84, 6374.68] | 0.670 | nonnorm |
| IMAT (median [IQR]) | 1660.48 [1470.24, 1763.68] | 1582.72 [1411.36, 1784.48] | 0.670 | nonnorm |
| Menopause\_yrs (median [IQR]) | 15.00 [13.00, 16.00] | 9.00 [6.50, 10.00] | 0.020 | nonnorm |
| Osteocalcin.1 (median [IQR]) | 32438.55 [20539.50, 40269.18] | 37348.74 [30268.34, 43316.68] | 0.208 | nonnorm |
| P1NP (median [IQR]) | 24.43 [20.97, 65.78] | 64.40 [30.06, 105.29] | 0.271 | nonnorm |
| PhosphorusSerum (median [IQR]) | 3.80 [3.60, 4.00] | 3.80 [3.55, 4.00] | 0.811 | nonnorm |
| PTH (mean (sd)) | 33.33 (11.37) | 37.80 (10.38) | 0.335 |  |
| T1DDuration (mean (sd)) | 34.61 (8.81) | 45.95 (6.27) | 0.001 |  |
| TtlFatMass (mean (sd)) | 26873.78 (3441.73) | 28624.68 (10137.28) | 0.644 |  |
| TtlFatPerc (mean (sd)) | 40.35 (2.98) | 38.96 (6.96) | 0.601 |  |
| TtlLeanMass (mean (sd)) | 37716.45 (4468.91) | 40870.24 (4942.38) | 0.152 |  |
| UCa\_Cr (median [IQR]) | 0.09 [0.03, 0.19] | 0.08 [0.03, 0.10] | 0.712 | nonnorm |
| VitD (median [IQR]) | 35.67 [25.15, 42.51] | 24.36 [19.17, 26.09] | 0.021 | nonnorm |
| FractureBone = TRUE (%) | 6 (66.7) | 13 (86.7) | 0.516 |  |
| HipNeither = TRUE (%) | 6 (66.7) | 12 (80.0) | 0.808 |  |
| HipParent = TRUE (%) | 3 (33.3) | 2 (13.3) | 0.326 | exact |
| HRT\_ever = TRUE (%) | 6 (66.7) | 5 (33.3) | 0.245 |  |
| HTN = TRUE (%) | 5 (55.6) | 9 (60.0) | 1.000 |  |
| Statin = TRUE (%) | 6 (66.7) | 6 (40.0) | 0.399 |  |
| Nephropathy = TRUE (%) | 1 (11.1) | 3 (20.0) | 1.000 | exact |
| Neuropathy = TRUE (%) | 2 (25.0) | 6 (46.2) | 0.400 | exact |
| Retinopathy = TRUE (%) | 1 (11.1) | 10 (66.7) | 0.013 | exact |

# Primary Aim: Differences by T1D Status

## Table 2a

Results for Least Square means ± standard error for variables by diabetic status adjusting for age.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (T1D+) | SE (T1D+) | Mean (T1D-) | SE (T1D-) | P Value |
| BMD1.3 | 0.635 | 0.018 | 0.667 | 0.019 | 0.245 |
| BMDLumbarTotal | 0.974 | 0.030 | 0.932 | 0.033 | 0.358 |
| BMDNeck | 0.676 | 0.018 | 0.693 | 0.019 | 0.521 |
| BMDTotalHip | 0.805 | 0.023 | 0.809 | 0.024 | 0.897 |
| BSI\_Crt\_R4 | 26.934 | 1.798 | 32.025 | 1.840 | 0.0573 |
| BSI\_Crt\_T4 | 71.712 | 4.900 | 72.170 | 5.379 | 0.951 |
| BSI\_R4 | 24.699 | 1.770 | 30.008 | 1.811 | 0.0446 |
| BSI\_SubCrt\_R4 | 26.982 | 2.253 | 30.188 | 2.305 | 0.332 |
| BSI\_SubCrt\_T4 | 41.329 | 2.824 | 37.894 | 3.100 | 0.423 |
| BSI\_T4 | 68.951 | 4.869 | 69.365 | 5.345 | 0.955 |
| BSI\_Trab\_R4 | 6.104 | 0.649 | 8.024 | 0.664 | 0.0473 |
| BSI\_Trab\_T4 | 37.514 | 3.024 | 40.190 | 3.319 | 0.559 |
| CRT\_A\_R4 | 319.741 | 11.816 | 333.020 | 12.088 | 0.442 |
| Crt\_A\_T38 | 242.182 | 6.470 | 249.422 | 7.102 | 0.46 |
| Crt\_A\_T4 | 1001.607 | 28.897 | 1015.000 | 31.720 | 0.759 |
| Crt\_A\_T66 | 233.179 | 7.254 | 228.322 | 7.962 | 0.658 |
| CRT\_Den\_R33 | 1182.108 | 8.583 | 1177.746 | 8.781 | 0.727 |
| Crt\_Den\_T38 | 1170.499 | 6.223 | 1141.527 | 6.831 | 0.00349 |
| Crt\_Den\_T4 | 265.878 | 9.850 | 266.357 | 10.812 | 0.974 |
| Crt\_Den\_T66 | 1111.887 | 7.361 | 1078.976 | 8.080 | 0.00486 |
| CRT\_THK\_R33 | 2.738 | 0.106 | 2.822 | 0.109 | 0.588 |
| Crt\_thk\_T38 | 4.716 | 0.132 | 4.725 | 0.145 | 0.964 |
| Crt\_thk\_T66 | 3.154 | 0.127 | 2.938 | 0.139 | 0.264 |
| CrtDen\_R4 | 294.397 | 11.734 | 306.731 | 12.004 | 0.472 |
| EndoC\_R33 | 17.124 | 0.809 | 17.343 | 0.827 | 0.853 |
| EndoC\_T38 | 36.844 | 1.023 | 38.126 | 1.123 | 0.409 |
| EndoC\_T66 | 64.937 | 1.870 | 69.482 | 2.053 | 0.113 |
| Imax\_Imin\_RADIUS | 1.317 | 0.049 | 1.294 | 0.049 | 0.736 |
| Imax\_Imin\_TIB\_38 | 1.693 | 0.087 | 1.586 | 0.093 | 0.409 |
| Imax\_Imin\_TIB\_66 | 1.564 | 0.095 | 1.475 | 0.101 | 0.528 |
| Imax\_RADIUS | 806.980 | 56.849 | 904.208 | 56.849 | 0.237 |
| Imax\_TIB\_38 | 12296.966 | 582.792 | 13170.358 | 623.792 | 0.316 |
| Imax\_TIB\_66 | 22890.948 | 1253.572 | 24951.924 | 1341.761 | 0.272 |
| Imin\_RADIUS | 615.075 | 38.768 | 699.754 | 38.768 | 0.133 |
| Imin\_TIB\_38 | 7564.942 | 464.308 | 8702.752 | 496.973 | 0.105 |
| Imin\_TIB\_66 | 15472.045 | 1103.315 | 17933.950 | 1180.934 | 0.139 |
| LengthR | 246.020 | 2.740 | 250.661 | 2.803 | 0.249 |
| LengthT | 378.978 | 5.537 | 406.326 | 6.078 | 0.00207 |
| PeriC\_R33 | 34.326 | 0.488 | 35.072 | 0.499 | 0.297 |
| PeriC\_t38 | 66.475 | 0.708 | 67.894 | 0.797 | 0.195 |
| PeriC\_t66 | 84.751 | 1.352 | 87.943 | 1.484 | 0.123 |
| SSI\_R33 | 219.045 | 9.124 | 235.676 | 9.334 | 0.215 |
| SSI\_T38 | 1503.848 | 45.577 | 1599.885 | 50.030 | 0.168 |
| SSI\_T66 | 2429.867 | 94.378 | 2629.558 | 103.598 | 0.166 |
| TBS.L1L4 | 1.339 | 0.018 | 1.336 | 0.020 | 0.923 |
| Tot\_A\_R4 | 297.341 | 11.804 | 313.696 | 12.076 | 0.344 |
| Tot\_A\_T4 | 967.885 | 28.606 | 982.082 | 31.401 | 0.743 |
| Tot\_Den\_R4 | 292.829 | 12.666 | 306.233 | 12.958 | 0.469 |
| Tot\_Den\_T4 | 265.243 | 10.175 | 265.329 | 11.169 | 0.996 |
| TRAB\_A\_R4 | 203.214 | 10.468 | 210.968 | 10.710 | 0.612 |
| Trab\_A\_T4 | 788.628 | 26.240 | 805.374 | 28.804 | 0.673 |
| Trab\_den\_R4 | 169.258 | 8.498 | 192.744 | 8.693 | 0.0632 |
| Trab\_Den\_T4 | 216.979 | 9.067 | 221.415 | 9.953 | 0.746 |

## Table 2b

Results for Least Square means ± standard error for variables by diabetic status adjusting for age and radius length.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (T1D+) | SE (T1D+) | Mean (T1D-) | SE (T1D-) | P Value |
| BSI\_Crt\_R4 | 27.074 | 1.827 | 31.879 | 1.870 | 0.0789 |
| BSI\_R4 | 24.780 | 1.804 | 29.923 | 1.846 | 0.0577 |
| BSI\_SubCrt\_R4 | 27.125 | 2.292 | 30.039 | 2.346 | 0.389 |
| BSI\_Trab\_R4 | 6.155 | 0.659 | 7.971 | 0.674 | 0.0663 |
| CRT\_A\_R4 | 323.371 | 11.196 | 329.225 | 11.458 | 0.722 |
| CRT\_Den\_R33 | 1182.191 | 8.757 | 1177.660 | 8.962 | 0.725 |
| CRT\_THK\_R33 | 2.741 | 0.108 | 2.818 | 0.111 | 0.63 |
| CrtDen\_R4 | 293.490 | 11.920 | 307.678 | 12.199 | 0.42 |
| EndoC\_R33 | 17.280 | 0.802 | 17.180 | 0.821 | 0.933 |
| Imax\_Imin\_RADIUS | 1.318 | 0.050 | 1.293 | 0.050 | 0.741 |
| Imax\_RADIUS | 826.782 | 53.467 | 884.406 | 53.467 | 0.458 |
| Imin\_RADIUS | 632.308 | 34.295 | 682.522 | 34.295 | 0.315 |
| PeriC\_R33 | 34.503 | 0.447 | 34.887 | 0.458 | 0.56 |
| SSI\_R33 | 222.279 | 8.414 | 232.295 | 8.611 | 0.42 |
| Tot\_A\_R4 | 300.445 | 11.421 | 310.451 | 11.688 | 0.552 |
| Tot\_Den\_R4 | 291.663 | 12.844 | 307.453 | 13.144 | 0.405 |
| TRAB\_A\_R4 | 205.779 | 10.203 | 208.286 | 10.442 | 0.867 |
| Trab\_den\_R4 | 168.090 | 8.550 | 193.965 | 8.751 | 0.0445 |

## Table 2c

Results for Least Square means ± standard error for variables by diabetic status adjusting for age and tibia length.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (T1D+) | SE (T1D+) | Mean (T1D-) | SE (T1D-) | P Value |
| BSI\_Crt\_T4 | 73.935 | 5.148 | 69.503 | 5.711 | 0.592 |
| BSI\_SubCrt\_T4 | 44.095 | 2.727 | 34.574 | 3.025 | 0.0342 |
| BSI\_T4 | 70.976 | 5.133 | 66.935 | 5.695 | 0.624 |
| BSI\_Trab\_T4 | 37.790 | 3.241 | 39.859 | 3.596 | 0.691 |
| Crt\_A\_T38 | 250.078 | 5.825 | 239.946 | 6.462 | 0.281 |
| Crt\_A\_T4 | 987.900 | 30.302 | 1031.448 | 33.616 | 0.372 |
| Crt\_A\_T66 | 234.467 | 7.758 | 226.775 | 8.606 | 0.537 |
| Crt\_Den\_T38 | 1171.329 | 6.665 | 1140.530 | 7.394 | 0.00602 |
| Crt\_Den\_T4 | 271.488 | 10.222 | 259.624 | 11.340 | 0.47 |
| Crt\_Den\_T66 | 1107.561 | 7.621 | 1084.167 | 8.455 | 0.0611 |
| Crt\_thk\_T38 | 4.847 | 0.127 | 4.568 | 0.141 | 0.174 |
| Crt\_thk\_T66 | 3.089 | 0.133 | 3.015 | 0.147 | 0.728 |
| EndoC\_T38 | 36.630 | 1.092 | 38.382 | 1.212 | 0.32 |
| EndoC\_T66 | 67.129 | 1.711 | 66.853 | 1.899 | 0.92 |
| Imax\_Imin\_TIB\_38 | 1.669 | 0.094 | 1.623 | 0.104 | 0.76 |
| Imax\_Imin\_TIB\_66 | 1.498 | 0.098 | 1.550 | 0.109 | 0.741 |
| Imax\_TIB\_38 | 12791.265 | 554.259 | 12276.782 | 614.868 | 0.563 |
| Imax\_TIB\_66 | 23928.482 | 1081.061 | 22696.044 | 1199.276 | 0.478 |
| Imin\_TIB\_38 | 8037.316 | 424.859 | 7904.047 | 471.318 | 0.845 |
| Imin\_TIB\_66 | 16908.078 | 924.854 | 15671.590 | 1025.988 | 0.406 |
| PeriC\_t38 | 67.067 | 0.696 | 67.145 | 0.795 | 0.945 |
| PeriC\_t66 | 86.539 | 1.172 | 85.798 | 1.300 | 0.694 |
| SSI\_T38 | 1550.737 | 43.460 | 1543.618 | 48.212 | 0.919 |
| SSI\_T66 | 2554.069 | 82.028 | 2480.516 | 90.998 | 0.577 |
| Tot\_A\_T4 | 950.892 | 29.596 | 1002.473 | 32.832 | 0.28 |
| Tot\_Den\_T4 | 271.022 | 10.561 | 258.394 | 11.716 | 0.457 |
| Trab\_A\_T4 | 772.310 | 27.050 | 824.956 | 30.008 | 0.229 |
| Trab\_Den\_T4 | 219.473 | 9.655 | 218.422 | 10.710 | 0.946 |

## Table 3a

Results for Least Square means ± standard error for variables by diabetic status adjusting for age and years of menopause.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (T1D+) | SE (T1D+) | Mean (T1D-) | SE (T1D-) | P Value |
| BMD1.3 | 0.636 | 0.019 | 0.666 | 0.019 | 0.281 |
| BMDLumbarTotal | 0.973 | 0.031 | 0.934 | 0.034 | 0.401 |
| BMDNeck | 0.677 | 0.019 | 0.692 | 0.019 | 0.606 |
| BMDTotalHip | 0.808 | 0.023 | 0.806 | 0.023 | 0.96 |
| BSI\_Crt\_R4 | 27.212 | 1.791 | 31.735 | 1.833 | 0.0906 |
| BSI\_Crt\_T4 | 71.811 | 4.986 | 72.051 | 5.479 | 0.975 |
| BSI\_R4 | 24.993 | 1.757 | 29.700 | 1.798 | 0.0732 |
| BSI\_SubCrt\_R4 | 27.507 | 2.177 | 29.640 | 2.228 | 0.505 |
| BSI\_SubCrt\_T4 | 41.005 | 2.834 | 38.282 | 3.115 | 0.528 |
| BSI\_T4 | 69.009 | 4.956 | 69.295 | 5.446 | 0.97 |
| BSI\_Trab\_R4 | 6.049 | 0.656 | 8.082 | 0.672 | 0.0397 |
| BSI\_Trab\_T4 | 37.762 | 3.056 | 39.893 | 3.358 | 0.647 |
| CRT\_A\_R4 | 318.380 | 11.887 | 334.443 | 12.164 | 0.359 |
| Crt\_A\_T38 | 241.603 | 6.529 | 250.116 | 7.175 | 0.393 |
| Crt\_A\_T4 | 1004.520 | 29.094 | 1011.504 | 31.970 | 0.875 |
| Crt\_A\_T66 | 232.676 | 7.346 | 228.925 | 8.073 | 0.737 |
| CRT\_Den\_R33 | 1182.074 | 8.743 | 1177.782 | 8.947 | 0.738 |
| Crt\_Den\_T38 | 1170.477 | 6.336 | 1141.552 | 6.962 | 0.00437 |
| Crt\_Den\_T4 | 265.813 | 10.028 | 266.434 | 11.019 | 0.968 |
| Crt\_Den\_T66 | 1111.595 | 7.481 | 1079.326 | 8.221 | 0.00679 |
| CRT\_THK\_R33 | 2.748 | 0.107 | 2.811 | 0.110 | 0.691 |
| Crt\_thk\_T38 | 4.714 | 0.134 | 4.728 | 0.147 | 0.947 |
| Crt\_thk\_T66 | 3.147 | 0.129 | 2.946 | 0.141 | 0.308 |
| CrtDen\_R4 | 296.367 | 11.636 | 304.671 | 11.907 | 0.627 |
| EndoC\_R33 | 17.042 | 0.816 | 17.429 | 0.835 | 0.747 |
| EndoC\_T38 | 36.757 | 1.033 | 38.230 | 1.135 | 0.351 |
| EndoC\_T66 | 64.951 | 1.904 | 69.466 | 2.092 | 0.124 |
| Imax\_Imin\_RADIUS | 1.323 | 0.050 | 1.287 | 0.050 | 0.617 |
| Imax\_Imin\_TIB\_38 | 1.687 | 0.088 | 1.593 | 0.094 | 0.475 |
| Imax\_Imin\_TIB\_66 | 1.578 | 0.093 | 1.459 | 0.100 | 0.396 |
| Imax\_RADIUS | 807.061 | 58.079 | 904.127 | 58.079 | 0.252 |
| Imax\_TIB\_38 | 12199.998 | 566.955 | 13281.178 | 607.173 | 0.206 |
| Imax\_TIB\_66 | 22840.534 | 1270.665 | 25009.540 | 1360.804 | 0.257 |
| Imin\_RADIUS | 611.837 | 39.399 | 702.993 | 39.399 | 0.115 |
| Imin\_TIB\_38 | 7523.690 | 466.147 | 8749.898 | 499.215 | 0.0838 |
| Imin\_TIB\_66 | 15333.279 | 1094.058 | 18092.540 | 1171.669 | 0.0969 |
| LengthR | 245.683 | 2.751 | 251.014 | 2.815 | 0.191 |
| LengthT | 378.662 | 5.618 | 406.705 | 6.173 | 0.00202 |
| PeriC\_R33 | 34.309 | 0.497 | 35.089 | 0.508 | 0.288 |
| PeriC\_t38 | 66.357 | 0.703 | 68.042 | 0.793 | 0.126 |
| PeriC\_t66 | 84.723 | 1.375 | 87.977 | 1.511 | 0.125 |
| SSI\_R33 | 218.534 | 9.266 | 236.211 | 9.483 | 0.198 |
| SSI\_T38 | 1499.768 | 45.996 | 1604.781 | 50.545 | 0.139 |
| SSI\_T66 | 2427.962 | 96.043 | 2631.844 | 105.540 | 0.168 |
| TBS.L1L4 | 1.339 | 0.019 | 1.336 | 0.020 | 0.934 |
| Tot\_A\_R4 | 296.055 | 11.890 | 315.040 | 12.168 | 0.28 |
| Tot\_A\_T4 | 969.431 | 29.031 | 980.227 | 31.902 | 0.807 |
| Tot\_Den\_R4 | 295.041 | 12.532 | 303.921 | 12.824 | 0.629 |
| Tot\_Den\_T4 | 265.254 | 10.359 | 265.315 | 11.384 | 0.997 |
| TRAB\_A\_R4 | 201.461 | 10.383 | 212.800 | 10.625 | 0.458 |
| Trab\_A\_T4 | 790.131 | 26.620 | 803.571 | 29.252 | 0.74 |
| Trab\_den\_R4 | 169.096 | 8.653 | 192.913 | 8.855 | 0.0661 |
| Trab\_Den\_T4 | 217.501 | 9.198 | 220.789 | 10.108 | 0.814 |

## Table 3b

Results for Least Square means ± standard error for variables by diabetic status adjusting for age, years of menopause, and radius length.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (T1D+) | SE (T1D+) | Mean (T1D-) | SE (T1D-) | P Value |
| BSI\_Crt\_R4 | 27.438 | 1.816 | 31.498 | 1.860 | 0.137 |
| BSI\_R4 | 25.154 | 1.789 | 29.531 | 1.832 | 0.105 |
| BSI\_SubCrt\_R4 | 27.793 | 2.207 | 29.341 | 2.259 | 0.636 |
| BSI\_Trab\_R4 | 6.097 | 0.670 | 8.032 | 0.686 | 0.0568 |
| CRT\_A\_R4 | 322.367 | 11.378 | 330.275 | 11.649 | 0.64 |
| CRT\_Den\_R33 | 1182.164 | 8.947 | 1177.688 | 9.160 | 0.736 |
| CRT\_THK\_R33 | 2.755 | 0.110 | 2.804 | 0.112 | 0.761 |
| CrtDen\_R4 | 295.735 | 11.889 | 305.331 | 12.172 | 0.587 |
| EndoC\_R33 | 17.208 | 0.816 | 17.256 | 0.835 | 0.969 |
| Imax\_Imin\_RADIUS | 1.325 | 0.051 | 1.286 | 0.051 | 0.6 |
| Imax\_RADIUS | 830.951 | 54.670 | 880.237 | 54.670 | 0.539 |
| Imin\_RADIUS | 631.845 | 35.178 | 682.984 | 35.178 | 0.324 |
| PeriC\_R33 | 34.516 | 0.457 | 34.874 | 0.468 | 0.597 |
| SSI\_R33 | 222.241 | 8.596 | 232.335 | 8.801 | 0.43 |
| Tot\_A\_R4 | 299.436 | 11.608 | 311.506 | 11.884 | 0.484 |
| Tot\_Den\_R4 | 294.157 | 12.790 | 304.845 | 13.095 | 0.574 |
| TRAB\_A\_R4 | 204.102 | 10.236 | 210.039 | 10.480 | 0.696 |
| Trab\_den\_R4 | 167.681 | 8.723 | 194.393 | 8.930 | 0.044 |

## Table 3c

Results for Least Square means ± standard error for variables by diabetic status adjusting for age, years of menopause, and tibia length.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (T1D+) | SE (T1D+) | Mean (T1D-) | SE (T1D-) | P Value |
| BSI\_Crt\_T4 | 74.135 | 5.251 | 69.263 | 5.833 | 0.566 |
| BSI\_SubCrt\_T4 | 43.769 | 2.754 | 34.965 | 3.059 | 0.0533 |
| BSI\_T4 | 71.117 | 5.238 | 66.765 | 5.819 | 0.607 |
| BSI\_Trab\_T4 | 38.118 | 3.284 | 39.466 | 3.648 | 0.799 |
| Crt\_A\_T38 | 249.592 | 5.916 | 240.529 | 6.572 | 0.346 |
| Crt\_A\_T4 | 991.202 | 30.660 | 1027.485 | 34.059 | 0.465 |
| Crt\_A\_T66 | 233.862 | 7.884 | 227.501 | 8.759 | 0.618 |
| Crt\_Den\_T38 | 1171.329 | 6.805 | 1140.530 | 7.560 | 0.0075 |
| Crt\_Den\_T4 | 271.589 | 10.436 | 259.503 | 11.593 | 0.475 |
| Crt\_Den\_T66 | 1107.043 | 7.755 | 1084.788 | 8.614 | 0.0815 |
| Crt\_thk\_T38 | 4.849 | 0.129 | 4.566 | 0.144 | 0.181 |
| Crt\_thk\_T66 | 3.079 | 0.135 | 3.028 | 0.150 | 0.817 |
| EndoC\_T38 | 36.511 | 1.105 | 38.525 | 1.228 | 0.263 |
| EndoC\_T66 | 67.218 | 1.744 | 66.745 | 1.937 | 0.867 |
| Imax\_Imin\_TIB\_38 | 1.657 | 0.095 | 1.636 | 0.106 | 0.891 |
| Imax\_Imin\_TIB\_66 | 1.517 | 0.097 | 1.526 | 0.108 | 0.955 |
| Imax\_TIB\_38 | 12681.080 | 548.676 | 12409.003 | 609.512 | 0.759 |
| Imax\_TIB\_66 | 23964.590 | 1102.872 | 22652.715 | 1225.156 | 0.463 |
| Imin\_TIB\_38 | 8008.063 | 432.234 | 7939.151 | 480.159 | 0.921 |
| Imin\_TIB\_66 | 16782.338 | 930.964 | 15822.478 | 1034.188 | 0.524 |
| PeriC\_t38 | 66.942 | 0.696 | 67.304 | 0.796 | 0.751 |
| PeriC\_t66 | 86.561 | 1.196 | 85.772 | 1.329 | 0.683 |
| SSI\_T38 | 1547.019 | 44.127 | 1548.079 | 49.020 | 0.988 |
| SSI\_T66 | 2555.684 | 83.729 | 2478.578 | 93.013 | 0.569 |
| Tot\_A\_T4 | 952.326 | 30.164 | 1000.753 | 33.509 | 0.323 |
| Tot\_Den\_T4 | 271.226 | 10.781 | 258.149 | 11.976 | 0.454 |
| Trab\_A\_T4 | 773.710 | 27.563 | 823.275 | 30.619 | 0.269 |
| Trab\_Den\_T4 | 220.227 | 9.812 | 217.518 | 10.900 | 0.864 |

## Table 4a

Results for Least Square means ± standard error for variables by diabetic status adjusting for age and BMI.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (T1D+) | SE (T1D+) | Mean (T1D-) | SE (T1D-) | P Value |
| BMD1.3 | 0.633 | 0.018 | 0.669 | 0.019 | 0.178 |
| BMDLumbarTotal | 0.965 | 0.028 | 0.943 | 0.031 | 0.618 |
| BMDNeck | 0.669 | 0.016 | 0.700 | 0.017 | 0.195 |
| BMDTotalHip | 0.797 | 0.021 | 0.817 | 0.021 | 0.503 |
| BSI\_Crt\_R4 | 26.816 | 1.813 | 32.149 | 1.855 | 0.0495 |
| BSI\_Crt\_T4 | 70.285 | 4.474 | 73.882 | 4.916 | 0.598 |
| BSI\_R4 | 24.582 | 1.785 | 30.130 | 1.826 | 0.0385 |
| BSI\_SubCrt\_R4 | 27.126 | 2.273 | 30.038 | 2.325 | 0.383 |
| BSI\_SubCrt\_T4 | 40.784 | 2.749 | 38.548 | 3.020 | 0.593 |
| BSI\_T4 | 67.544 | 4.454 | 71.053 | 4.894 | 0.605 |
| BSI\_Trab\_R4 | 5.962 | 0.602 | 8.173 | 0.616 | 0.0155 |
| BSI\_Trab\_T4 | 36.653 | 2.776 | 41.223 | 3.050 | 0.282 |
| CRT\_A\_R4 | 317.657 | 11.344 | 335.199 | 11.607 | 0.294 |
| Crt\_A\_T38 | 241.112 | 6.374 | 250.706 | 7.004 | 0.325 |
| Crt\_A\_T4 | 999.528 | 29.235 | 1017.495 | 32.124 | 0.686 |
| Crt\_A\_T66 | 231.983 | 7.148 | 229.756 | 7.855 | 0.838 |
| CRT\_Den\_R33 | 1181.247 | 8.566 | 1178.646 | 8.765 | 0.836 |
| Crt\_Den\_T38 | 1169.986 | 6.284 | 1142.142 | 6.905 | 0.00553 |
| Crt\_Den\_T4 | 263.559 | 9.364 | 269.139 | 10.289 | 0.695 |
| Crt\_Den\_T66 | 1112.490 | 7.434 | 1078.252 | 8.168 | 0.00406 |
| CRT\_THK\_R33 | 2.721 | 0.103 | 2.839 | 0.106 | 0.434 |
| Crt\_thk\_T38 | 4.692 | 0.129 | 4.755 | 0.141 | 0.746 |
| Crt\_thk\_T66 | 3.151 | 0.129 | 2.941 | 0.142 | 0.287 |
| CrtDen\_R4 | 294.823 | 11.890 | 306.285 | 12.166 | 0.511 |
| EndoC\_R33 | 17.202 | 0.808 | 17.262 | 0.827 | 0.959 |
| EndoC\_T38 | 36.984 | 1.018 | 37.958 | 1.119 | 0.53 |
| EndoC\_T66 | 64.628 | 1.843 | 69.854 | 2.025 | 0.0677 |
| Imax\_Imin\_RADIUS | 1.314 | 0.049 | 1.297 | 0.049 | 0.81 |
| Imax\_Imin\_TIB\_38 | 1.673 | 0.084 | 1.609 | 0.090 | 0.608 |
| Imax\_Imin\_TIB\_66 | 1.547 | 0.093 | 1.494 | 0.100 | 0.705 |
| Imax\_RADIUS | 802.404 | 56.242 | 908.783 | 56.242 | 0.193 |
| Imax\_TIB\_38 | 12180.559 | 567.558 | 13303.394 | 607.959 | 0.191 |
| Imax\_TIB\_66 | 22453.870 | 1099.479 | 25451.441 | 1177.745 | 0.074 |
| Imin\_RADIUS | 612.734 | 38.789 | 702.096 | 38.789 | 0.114 |
| Imin\_TIB\_38 | 7582.267 | 471.874 | 8682.953 | 505.464 | 0.124 |
| Imin\_TIB\_66 | 15303.889 | 1094.987 | 18126.128 | 1172.932 | 0.0906 |
| LengthR | 245.830 | 2.759 | 250.859 | 2.823 | 0.217 |
| LengthT | 378.595 | 5.605 | 406.786 | 6.158 | 0.00187 |
| PeriC\_R33 | 34.297 | 0.493 | 35.103 | 0.504 | 0.267 |
| PeriC\_t38 | 66.464 | 0.719 | 67.908 | 0.811 | 0.197 |
| PeriC\_t66 | 84.428 | 1.282 | 88.332 | 1.408 | 0.0505 |
| SSI\_R33 | 218.303 | 9.161 | 236.452 | 9.373 | 0.18 |
| SSI\_T38 | 1499.629 | 45.927 | 1604.948 | 50.466 | 0.137 |
| SSI\_T66 | 2399.979 | 84.239 | 2665.424 | 92.563 | 0.0434 |
| TBS.L1L4 | 1.340 | 0.019 | 1.335 | 0.020 | 0.861 |
| Tot\_A\_R4 | 295.237 | 11.317 | 315.896 | 11.580 | 0.216 |
| Tot\_A\_T4 | 966.301 | 29.011 | 983.983 | 31.878 | 0.689 |
| Tot\_Den\_R4 | 293.254 | 12.839 | 305.789 | 13.137 | 0.506 |
| Tot\_Den\_T4 | 262.815 | 9.654 | 268.242 | 10.608 | 0.712 |
| TRAB\_A\_R4 | 201.374 | 10.054 | 212.891 | 10.287 | 0.435 |
| Trab\_A\_T4 | 787.959 | 26.687 | 806.177 | 29.324 | 0.654 |
| Trab\_den\_R4 | 167.793 | 8.180 | 194.276 | 8.369 | 0.0315 |
| Trab\_Den\_T4 | 214.599 | 8.465 | 224.272 | 9.301 | 0.454 |

## Table 4b

Results for Least Square means ± standard error for variables by diabetic status adjusting for age, BMI, and radius length.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (T1D+) | SE (T1D+) | Mean (T1D-) | SE (T1D-) | P Value |
| BSI\_Crt\_R4 | 26.945 | 1.847 | 32.015 | 1.891 | 0.0687 |
| BSI\_R4 | 24.646 | 1.823 | 30.062 | 1.866 | 0.0495 |
| BSI\_SubCrt\_R4 | 27.315 | 2.313 | 29.841 | 2.368 | 0.461 |
| BSI\_Trab\_R4 | 5.987 | 0.615 | 8.146 | 0.629 | 0.0215 |
| CRT\_A\_R4 | 321.205 | 10.857 | 331.489 | 11.114 | 0.522 |
| CRT\_Den\_R33 | 1181.152 | 8.755 | 1178.746 | 8.962 | 0.852 |
| CRT\_THK\_R33 | 2.721 | 0.106 | 2.839 | 0.108 | 0.45 |
| CrtDen\_R4 | 293.917 | 12.109 | 307.232 | 12.395 | 0.458 |
| EndoC\_R33 | 17.390 | 0.798 | 17.066 | 0.816 | 0.783 |
| Imax\_Imin\_RADIUS | 1.313 | 0.050 | 1.298 | 0.050 | 0.834 |
| Imax\_RADIUS | 822.050 | 53.285 | 889.138 | 53.285 | 0.388 |
| Imin\_RADIUS | 630.305 | 34.559 | 684.524 | 34.559 | 0.283 |
| PeriC\_R33 | 34.486 | 0.454 | 34.905 | 0.465 | 0.534 |
| SSI\_R33 | 221.705 | 8.512 | 232.895 | 8.713 | 0.375 |
| Tot\_A\_R4 | 298.201 | 11.057 | 312.797 | 11.319 | 0.374 |
| Tot\_Den\_R4 | 292.061 | 13.052 | 307.036 | 13.361 | 0.439 |
| TRAB\_A\_R4 | 203.802 | 9.893 | 210.353 | 10.126 | 0.654 |
| Trab\_den\_R4 | 166.190 | 8.156 | 195.952 | 8.349 | 0.0171 |

## Table 4c

Results for Least Square means ± standard error for variables by diabetic status adjusting for age, BMI, and tibia length.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (T1D+) | SE (T1D+) | Mean (T1D-) | SE (T1D-) | P Value |
| BSI\_Crt\_T4 | 72.070 | 4.744 | 71.741 | 5.271 | 0.966 |
| BSI\_SubCrt\_T4 | 43.464 | 2.677 | 35.331 | 2.975 | 0.0659 |
| BSI\_T4 | 69.130 | 4.738 | 69.150 | 5.264 | 0.998 |
| BSI\_Trab\_T4 | 36.620 | 2.989 | 41.264 | 3.321 | 0.339 |
| Crt\_A\_T38 | 248.944 | 5.788 | 241.307 | 6.431 | 0.416 |
| Crt\_A\_T4 | 984.464 | 30.673 | 1035.571 | 34.077 | 0.306 |
| Crt\_A\_T66 | 232.880 | 7.686 | 228.680 | 8.539 | 0.735 |
| Crt\_Den\_T38 | 1170.660 | 6.760 | 1141.333 | 7.510 | 0.0101 |
| Crt\_Den\_T4 | 268.541 | 9.807 | 263.160 | 10.895 | 0.734 |
| Crt\_Den\_T66 | 1108.205 | 7.747 | 1083.394 | 8.606 | 0.053 |
| Crt\_thk\_T38 | 4.819 | 0.125 | 4.602 | 0.139 | 0.286 |
| Crt\_thk\_T66 | 3.083 | 0.135 | 3.022 | 0.150 | 0.78 |
| EndoC\_T38 | 36.813 | 1.093 | 38.162 | 1.215 | 0.447 |
| EndoC\_T66 | 66.797 | 1.701 | 67.251 | 1.890 | 0.869 |
| Imax\_Imin\_TIB\_38 | 1.641 | 0.090 | 1.656 | 0.100 | 0.914 |
| Imax\_Imin\_TIB\_66 | 1.472 | 0.095 | 1.580 | 0.106 | 0.482 |
| Imax\_TIB\_38 | 12655.665 | 541.628 | 12439.502 | 601.739 | 0.805 |
| Imax\_TIB\_66 | 23385.538 | 884.681 | 23347.578 | 982.864 | 0.979 |
| Imin\_TIB\_38 | 8079.404 | 431.004 | 7853.541 | 478.838 | 0.746 |
| Imin\_TIB\_66 | 16742.685 | 923.127 | 15870.062 | 1025.578 | 0.559 |
| PeriC\_t38 | 67.076 | 0.711 | 67.134 | 0.812 | 0.96 |
| PeriC\_t66 | 86.170 | 1.110 | 86.241 | 1.233 | 0.968 |
| SSI\_T38 | 1546.930 | 44.157 | 1548.186 | 49.057 | 0.986 |
| SSI\_T66 | 2518.288 | 71.584 | 2523.453 | 79.528 | 0.964 |
| Tot\_A\_T4 | 947.997 | 30.029 | 1005.948 | 33.362 | 0.237 |
| Tot\_Den\_T4 | 267.932 | 10.113 | 262.101 | 11.235 | 0.721 |
| Trab\_A\_T4 | 770.699 | 27.565 | 826.890 | 30.624 | 0.212 |
| Trab\_Den\_T4 | 216.310 | 9.080 | 222.218 | 10.088 | 0.687 |

# Secondary Aim: Differences by Age at T1D Diagnosis

## Table 5a

Results for Least Square means ± standard error for variables by age at diagnosis adjusting for age.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (> 20 yrs) | SE (> 20 yrs) | Mean (< 20 yrs) | SE (< 20 yrs) | P Value |
| BMD1.3 | 0.651 | 0.037 | 0.639 | 0.028 | 0.822 |
| BMDLumbarTotal | 0.998 | 0.046 | 0.965 | 0.034 | 0.607 |
| BMDNeck | 0.709 | 0.041 | 0.668 | 0.028 | 0.457 |
| BMDTotalHip | 0.862 | 0.051 | 0.789 | 0.035 | 0.291 |
| BSI\_Crt\_R4 | 33.197 | 2.445 | 23.556 | 1.858 | 0.0104 |
| BSI\_Crt\_T4 | 89.918 | 10.710 | 61.378 | 7.854 | 0.0634 |
| BSI\_R4 | 31.340 | 2.367 | 21.063 | 1.798 | 0.00547 |
| BSI\_SubCrt\_R4 | 30.636 | 3.825 | 25.476 | 2.906 | 0.345 |
| BSI\_SubCrt\_T4 | 49.072 | 6.266 | 38.085 | 4.595 | 0.211 |
| BSI\_T4 | 86.937 | 10.677 | 58.825 | 7.829 | 0.0664 |
| BSI\_Trab\_R4 | 8.553 | 1.175 | 4.605 | 0.893 | 0.0258 |
| BSI\_Trab\_T4 | 48.044 | 5.984 | 31.036 | 4.388 | 0.0489 |
| CRT\_A\_R4 | 289.303 | 26.867 | 339.894 | 20.411 | 0.192 |
| Crt\_A\_T38 | 253.315 | 11.570 | 237.398 | 8.485 | 0.323 |
| Crt\_A\_T4 | 893.407 | 48.647 | 1063.892 | 35.672 | 0.0176 |
| Crt\_A\_T66 | 246.303 | 11.159 | 226.629 | 8.183 | 0.209 |
| CRT\_Den\_R33 | 1205.657 | 13.962 | 1172.406 | 10.607 | 0.103 |
| Crt\_Den\_T38 | 1183.299 | 7.889 | 1163.647 | 5.785 | 0.0812 |
| Crt\_Den\_T4 | 314.921 | 21.007 | 238.027 | 15.404 | 0.0137 |
| Crt\_Den\_T66 | 1123.021 | 8.478 | 1105.641 | 6.217 | 0.147 |
| CRT\_THK\_R33 | 2.969 | 0.212 | 2.690 | 0.161 | 0.358 |
| Crt\_thk\_T38 | 5.178 | 0.246 | 4.503 | 0.180 | 0.0568 |
| Crt\_thk\_T66 | 3.511 | 0.193 | 2.941 | 0.142 | 0.0418 |
| CrtDen\_R4 | 345.708 | 22.601 | 264.338 | 17.170 | 0.0178 |
| EndoC\_R33 | 14.411 | 1.625 | 18.184 | 1.235 | 0.112 |
| EndoC\_T38 | 32.611 | 1.880 | 38.868 | 1.378 | 0.0232 |
| EndoC\_T66 | 59.861 | 2.903 | 68.233 | 2.129 | 0.046 |
| Imax\_Imin\_RADIUS | 1.264 | 0.090 | 1.363 | 0.076 | 0.46 |
| Imax\_Imin\_TIB\_38 | 1.687 | 0.169 | 1.707 | 0.124 | 0.931 |
| Imax\_Imin\_TIB\_66 | 1.464 | 0.181 | 1.623 | 0.132 | 0.523 |
| Imax\_RADIUS | 745.491 | 85.766 | 853.903 | 71.888 | 0.393 |
| Imax\_TIB\_38 | 11883.855 | 958.612 | 12621.557 | 702.949 | 0.577 |
| Imax\_TIB\_66 | 21897.367 | 1969.106 | 23908.373 | 1443.944 | 0.461 |
| Imin\_RADIUS | 584.971 | 57.919 | 636.120 | 48.548 | 0.548 |
| Imin\_TIB\_38 | 7232.895 | 690.674 | 7748.019 | 506.470 | 0.589 |
| Imin\_TIB\_66 | 15106.740 | 1851.383 | 15922.189 | 1357.618 | 0.749 |
| LengthR | 241.080 | 5.675 | 250.091 | 4.311 | 0.268 |
| LengthT | 377.774 | 9.870 | 381.069 | 7.237 | 0.808 |
| PeriC\_R33 | 33.066 | 0.903 | 35.089 | 0.686 | 0.124 |
| PeriC\_t38 | 65.146 | 1.206 | 67.165 | 0.885 | 0.232 |
| PeriC\_t66 | 81.922 | 2.275 | 86.711 | 1.669 | 0.137 |
| SSI\_R33 | 199.754 | 15.587 | 232.599 | 11.841 | 0.146 |
| SSI\_T38 | 1477.027 | 76.513 | 1514.755 | 56.107 | 0.721 |
| SSI\_T66 | 2395.878 | 168.314 | 2476.600 | 123.425 | 0.728 |
| TBS.L1L4 | 1.363 | 0.035 | 1.329 | 0.025 | 0.487 |
| Tot\_A\_R4 | 268.804 | 26.538 | 315.769 | 20.160 | 0.219 |
| Tot\_A\_T4 | 855.791 | 48.719 | 1035.400 | 35.726 | 0.0131 |
| Tot\_Den\_R4 | 349.692 | 24.206 | 259.555 | 18.389 | 0.0147 |
| Tot\_Den\_T4 | 315.987 | 21.744 | 236.281 | 15.945 | 0.0135 |
| TRAB\_A\_R4 | 176.059 | 23.787 | 219.836 | 18.071 | 0.202 |
| Trab\_A\_T4 | 684.276 | 45.232 | 850.640 | 33.169 | 0.0133 |
| Trab\_den\_R4 | 213.699 | 16.894 | 141.394 | 12.834 | 0.00606 |
| Trab\_Den\_T4 | 262.078 | 18.810 | 189.693 | 13.793 | 0.01 |

## Table 5b

Results for Least Square means ± standard error for variables by age at diagnosis adjusting for age and radius length.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (> 20 yrs) | SE (> 20 yrs) | Mean (< 20 yrs) | SE (< 20 yrs) | P Value |
| BSI\_Crt\_R4 | 33.907 | 2.448 | 23.100 | 1.848 | 0.00542 |
| BSI\_R4 | 31.877 | 2.414 | 20.717 | 1.823 | 0.00389 |
| BSI\_SubCrt\_R4 | 31.734 | 3.834 | 24.770 | 2.894 | 0.212 |
| BSI\_Trab\_R4 | 8.549 | 1.233 | 4.608 | 0.931 | 0.0349 |
| CRT\_A\_R4 | 295.657 | 27.345 | 335.809 | 20.641 | 0.31 |
| CRT\_Den\_R33 | 1206.442 | 14.630 | 1171.902 | 11.044 | 0.11 |
| CRT\_THK\_R33 | 2.981 | 0.223 | 2.682 | 0.168 | 0.352 |
| CrtDen\_R4 | 347.400 | 23.652 | 263.250 | 17.854 | 0.0204 |
| EndoC\_R33 | 14.718 | 1.673 | 17.987 | 1.263 | 0.181 |
| Imax\_Imin\_RADIUS | 1.267 | 0.095 | 1.361 | 0.079 | 0.506 |
| Imax\_RADIUS | 777.797 | 79.916 | 829.673 | 66.743 | 0.661 |
| Imin\_RADIUS | 609.383 | 52.134 | 617.811 | 43.540 | 0.913 |
| PeriC\_R33 | 33.450 | 0.851 | 34.842 | 0.643 | 0.259 |
| SSI\_R33 | 205.878 | 14.949 | 228.662 | 11.284 | 0.292 |
| Tot\_A\_R4 | 273.571 | 27.370 | 312.704 | 20.661 | 0.322 |
| Tot\_Den\_R4 | 350.952 | 25.371 | 258.745 | 19.152 | 0.0182 |
| TRAB\_A\_R4 | 179.163 | 24.740 | 217.841 | 18.675 | 0.28 |
| Trab\_den\_R4 | 211.099 | 17.507 | 143.065 | 13.215 | 0.0124 |

## Table 5c

Results for Least Square means ± standard error for variables by age at diagnosis adjusting for age and tibia length.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (> 20 yrs) | SE (> 20 yrs) | Mean (< 20 yrs) | SE (< 20 yrs) | P Value |
| BSI\_Crt\_T4 | 90.643 | 10.392 | 60.944 | 7.618 | 0.0485 |
| BSI\_SubCrt\_T4 | 49.781 | 5.397 | 37.659 | 3.956 | 0.114 |
| BSI\_T4 | 87.640 | 10.393 | 58.404 | 7.618 | 0.0518 |
| BSI\_Trab\_T4 | 48.270 | 6.037 | 30.900 | 4.425 | 0.0472 |
| Crt\_A\_T38 | 254.802 | 9.350 | 236.505 | 6.854 | 0.166 |
| Crt\_A\_T4 | 890.773 | 48.190 | 1065.472 | 35.326 | 0.0149 |
| Crt\_A\_T66 | 246.717 | 11.265 | 226.381 | 8.257 | 0.199 |
| Crt\_Den\_T38 | 1183.756 | 7.773 | 1163.373 | 5.698 | 0.0682 |
| Crt\_Den\_T4 | 316.635 | 19.833 | 236.999 | 14.539 | 0.00789 |
| Crt\_Den\_T66 | 1122.869 | 8.664 | 1105.732 | 6.351 | 0.161 |
| Crt\_thk\_T38 | 5.210 | 0.199 | 4.484 | 0.146 | 0.0143 |
| Crt\_thk\_T66 | 3.505 | 0.196 | 2.945 | 0.144 | 0.0486 |
| EndoC\_T38 | 32.464 | 1.788 | 38.957 | 1.310 | 0.0147 |
| EndoC\_T66 | 60.175 | 2.545 | 68.045 | 1.866 | 0.0342 |
| Imax\_Imin\_TIB\_38 | 1.693 | 0.171 | 1.704 | 0.125 | 0.963 |
| Imax\_Imin\_TIB\_66 | 1.453 | 0.178 | 1.629 | 0.131 | 0.476 |
| Imax\_TIB\_38 | 11976.605 | 871.183 | 12565.907 | 638.619 | 0.624 |
| Imax\_TIB\_66 | 22072.432 | 1827.274 | 23803.334 | 1339.481 | 0.494 |
| Imin\_TIB\_38 | 7260.692 | 695.158 | 7731.341 | 509.585 | 0.624 |
| Imin\_TIB\_66 | 15321.201 | 1579.493 | 15793.512 | 1157.846 | 0.828 |
| PeriC\_t38 | 65.198 | 1.211 | 67.134 | 0.888 | 0.254 |
| PeriC\_t66 | 82.197 | 1.903 | 86.546 | 1.395 | 0.109 |
| SSI\_T38 | 1482.369 | 73.959 | 1511.550 | 54.215 | 0.775 |
| SSI\_T66 | 2415.174 | 144.251 | 2465.023 | 105.743 | 0.802 |
| Tot\_A\_T4 | 852.892 | 47.899 | 1037.139 | 35.113 | 0.0104 |
| Tot\_Den\_T4 | 317.725 | 20.602 | 235.239 | 15.102 | 0.00804 |
| Trab\_A\_T4 | 681.199 | 43.861 | 852.486 | 32.152 | 0.00945 |
| Trab\_Den\_T4 | 263.103 | 18.624 | 189.078 | 13.652 | 0.00843 |

## Table 6a

Results for Least Square means ± standard error for variables by age at diagnosis adjusting for age and years of menopause.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (> 20 yrs) | SE (> 20 yrs) | Mean (< 20 yrs) | SE (< 20 yrs) | P Value |
| BMD1.3 | 0.650 | 0.038 | 0.640 | 0.029 | 0.857 |
| BMDLumbarTotal | 1.008 | 0.046 | 0.958 | 0.034 | 0.44 |
| BMDNeck | 0.706 | 0.043 | 0.670 | 0.029 | 0.537 |
| BMDTotalHip | 0.858 | 0.053 | 0.791 | 0.036 | 0.347 |
| BSI\_Crt\_R4 | 33.187 | 2.548 | 23.563 | 1.927 | 0.0144 |
| BSI\_Crt\_T4 | 90.873 | 11.031 | 60.805 | 8.056 | 0.0599 |
| BSI\_R4 | 31.307 | 2.466 | 21.084 | 1.865 | 0.00812 |
| BSI\_SubCrt\_R4 | 29.698 | 3.792 | 26.079 | 2.868 | 0.504 |
| BSI\_SubCrt\_T4 | 49.778 | 6.425 | 37.662 | 4.692 | 0.183 |
| BSI\_T4 | 87.875 | 11.000 | 58.262 | 8.033 | 0.0628 |
| BSI\_Trab\_R4 | 8.936 | 1.117 | 4.359 | 0.845 | 0.00876 |
| BSI\_Trab\_T4 | 48.417 | 6.187 | 30.812 | 4.518 | 0.0503 |
| CRT\_A\_R4 | 296.911 | 26.159 | 335.003 | 19.786 | 0.312 |
| Crt\_A\_T38 | 254.117 | 11.953 | 236.917 | 8.729 | 0.305 |
| Crt\_A\_T4 | 898.087 | 50.044 | 1061.084 | 36.546 | 0.0272 |
| Crt\_A\_T66 | 245.971 | 11.570 | 226.828 | 8.449 | 0.24 |
| CRT\_Den\_R33 | 1205.199 | 14.536 | 1172.700 | 10.995 | 0.128 |
| Crt\_Den\_T38 | 1182.556 | 8.118 | 1164.093 | 5.928 | 0.112 |
| Crt\_Den\_T4 | 316.076 | 21.737 | 237.334 | 15.874 | 0.0153 |
| Crt\_Den\_T66 | 1122.405 | 8.754 | 1106.010 | 6.393 | 0.186 |
| CRT\_THK\_R33 | 2.949 | 0.220 | 2.703 | 0.166 | 0.436 |
| Crt\_thk\_T38 | 5.160 | 0.254 | 4.515 | 0.186 | 0.0779 |
| Crt\_thk\_T66 | 3.503 | 0.200 | 2.946 | 0.146 | 0.0552 |
| CrtDen\_R4 | 342.297 | 23.123 | 266.530 | 17.489 | 0.0306 |
| EndoC\_R33 | 14.653 | 1.664 | 18.029 | 1.258 | 0.164 |
| EndoC\_T38 | 33.042 | 1.852 | 38.610 | 1.353 | 0.0398 |
| EndoC\_T66 | 59.965 | 3.009 | 68.171 | 2.197 | 0.0597 |
| Imax\_Imin\_RADIUS | 1.247 | 0.091 | 1.376 | 0.076 | 0.343 |
| Imax\_Imin\_TIB\_38 | 1.690 | 0.175 | 1.706 | 0.128 | 0.947 |
| Imax\_Imin\_TIB\_66 | 1.430 | 0.181 | 1.644 | 0.132 | 0.397 |
| Imax\_RADIUS | 748.350 | 89.442 | 851.759 | 74.757 | 0.437 |
| Imax\_TIB\_38 | 12090.322 | 950.797 | 12497.677 | 694.341 | 0.757 |
| Imax\_TIB\_66 | 21777.652 | 2036.306 | 23980.202 | 1487.060 | 0.438 |
| Imin\_RADIUS | 595.326 | 58.606 | 628.353 | 48.984 | 0.703 |
| Imin\_TIB\_38 | 7356.243 | 695.094 | 7674.010 | 507.609 | 0.741 |
| Imin\_TIB\_66 | 15262.672 | 1908.455 | 15828.630 | 1393.693 | 0.83 |
| LengthR | 241.908 | 5.813 | 249.559 | 4.397 | 0.36 |
| LengthT | 377.579 | 10.238 | 381.186 | 7.477 | 0.799 |
| PeriC\_R33 | 33.179 | 0.929 | 35.016 | 0.703 | 0.175 |
| PeriC\_t38 | 65.461 | 1.170 | 66.976 | 0.854 | 0.354 |
| PeriC\_t66 | 81.976 | 2.360 | 86.679 | 1.723 | 0.16 |
| SSI\_R33 | 202.229 | 15.915 | 231.008 | 12.038 | 0.213 |
| SSI\_T38 | 1489.260 | 77.485 | 1507.416 | 56.585 | 0.866 |
| SSI\_T66 | 2389.071 | 174.394 | 2480.684 | 127.356 | 0.705 |
| TBS.L1L4 | 1.365 | 0.037 | 1.328 | 0.026 | 0.47 |
| Tot\_A\_R4 | 276.402 | 25.796 | 310.885 | 19.511 | 0.353 |
| Tot\_A\_T4 | 860.962 | 50.023 | 1032.297 | 36.530 | 0.0209 |
| Tot\_Den\_R4 | 345.929 | 24.736 | 261.974 | 18.710 | 0.0258 |
| Tot\_Den\_T4 | 317.067 | 22.512 | 235.633 | 16.440 | 0.0154 |
| TRAB\_A\_R4 | 183.461 | 22.808 | 215.078 | 17.251 | 0.336 |
| Trab\_A\_T4 | 688.373 | 46.578 | 848.181 | 34.014 | 0.0207 |
| Trab\_den\_R4 | 217.869 | 16.733 | 138.713 | 12.657 | 0.0032 |
| Trab\_Den\_T4 | 262.642 | 19.502 | 189.355 | 14.242 | 0.0123 |

## Table 6b

Results for Least Square means ± standard error for variables by age at diagnosis adjusting for age, years of menopause, and radius length.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (> 20 yrs) | SE (> 20 yrs) | Mean (< 20 yrs) | SE (< 20 yrs) | P Value |
| BSI\_Crt\_R4 | 33.813 | 2.534 | 23.161 | 1.908 | 0.00805 |
| BSI\_R4 | 31.786 | 2.499 | 20.776 | 1.881 | 0.00589 |
| BSI\_SubCrt\_R4 | 30.847 | 3.667 | 25.340 | 2.761 | 0.301 |
| BSI\_Trab\_R4 | 8.857 | 1.162 | 4.410 | 0.875 | 0.0143 |
| CRT\_A\_R4 | 301.000 | 26.800 | 332.374 | 20.179 | 0.418 |
| CRT\_Den\_R33 | 1205.979 | 15.151 | 1172.199 | 11.408 | 0.132 |
| CRT\_THK\_R33 | 2.963 | 0.229 | 2.694 | 0.172 | 0.415 |
| CrtDen\_R4 | 344.453 | 23.990 | 265.144 | 18.063 | 0.0309 |
| EndoC\_R33 | 14.875 | 1.714 | 17.886 | 1.290 | 0.229 |
| Imax\_Imin\_RADIUS | 1.253 | 0.094 | 1.371 | 0.079 | 0.402 |
| Imax\_RADIUS | 775.800 | 83.040 | 831.171 | 69.232 | 0.654 |
| Imin\_RADIUS | 614.575 | 53.352 | 613.917 | 44.481 | 0.993 |
| PeriC\_R33 | 33.494 | 0.879 | 34.814 | 0.662 | 0.302 |
| SSI\_R33 | 207.124 | 15.351 | 227.861 | 11.558 | 0.351 |
| Tot\_A\_R4 | 279.099 | 26.716 | 309.150 | 20.115 | 0.436 |
| Tot\_Den\_R4 | 347.775 | 25.727 | 260.788 | 19.371 | 0.0277 |
| TRAB\_A\_R4 | 184.736 | 23.767 | 214.258 | 17.895 | 0.39 |
| Trab\_den\_R4 | 214.765 | 17.005 | 140.708 | 12.804 | 0.00638 |

## Table 6c

Results for Least Square means ± standard error for variables by age at diagnosis adjusting for age, years of menopause, and tibia length.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (> 20 yrs) | SE (> 20 yrs) | Mean (< 20 yrs) | SE (< 20 yrs) | P Value |
| BSI\_Crt\_T4 | 91.675 | 10.696 | 60.324 | 7.808 | 0.0452 |
| BSI\_SubCrt\_T4 | 50.561 | 5.494 | 37.191 | 4.011 | 0.091 |
| BSI\_T4 | 88.653 | 10.700 | 57.796 | 7.811 | 0.0484 |
| BSI\_Trab\_T4 | 48.667 | 6.247 | 30.662 | 4.560 | 0.0485 |
| Crt\_A\_T38 | 255.753 | 9.619 | 235.935 | 7.021 | 0.148 |
| Crt\_A\_T4 | 895.240 | 49.662 | 1062.792 | 36.252 | 0.0232 |
| Crt\_A\_T66 | 246.421 | 11.698 | 226.558 | 8.540 | 0.229 |
| Crt\_Den\_T38 | 1183.051 | 8.013 | 1163.796 | 5.850 | 0.0949 |
| Crt\_Den\_T4 | 317.963 | 20.521 | 236.202 | 14.980 | 0.00889 |
| Crt\_Den\_T66 | 1122.233 | 8.957 | 1106.113 | 6.538 | 0.204 |
| Crt\_thk\_T38 | 5.194 | 0.205 | 4.494 | 0.150 | 0.022 |
| Crt\_thk\_T66 | 3.496 | 0.203 | 2.950 | 0.148 | 0.0641 |
| EndoC\_T38 | 32.885 | 1.755 | 38.704 | 1.281 | 0.0254 |
| EndoC\_T66 | 60.310 | 2.638 | 67.964 | 1.925 | 0.0471 |
| Imax\_Imin\_TIB\_38 | 1.696 | 0.178 | 1.702 | 0.130 | 0.98 |
| Imax\_Imin\_TIB\_66 | 1.418 | 0.178 | 1.651 | 0.130 | 0.351 |
| Imax\_TIB\_38 | 12193.692 | 849.370 | 12435.655 | 620.029 | 0.837 |
| Imax\_TIB\_66 | 21968.464 | 1892.944 | 23865.715 | 1381.823 | 0.472 |
| Imin\_TIB\_38 | 7387.741 | 698.737 | 7655.111 | 510.069 | 0.783 |
| Imin\_TIB\_66 | 15498.977 | 1621.211 | 15686.847 | 1183.462 | 0.933 |
| PeriC\_t38 | 65.521 | 1.169 | 66.940 | 0.853 | 0.385 |
| PeriC\_t66 | 82.278 | 1.974 | 86.498 | 1.441 | 0.134 |
| SSI\_T38 | 1495.217 | 74.587 | 1503.842 | 54.447 | 0.933 |
| SSI\_T66 | 2410.157 | 149.729 | 2468.033 | 109.300 | 0.78 |
| Tot\_A\_T4 | 857.830 | 49.264 | 1034.177 | 35.962 | 0.0169 |
| Tot\_Den\_T4 | 318.980 | 21.333 | 234.485 | 15.573 | 0.00923 |
| Trab\_A\_T4 | 685.036 | 45.242 | 850.184 | 33.026 | 0.0151 |
| Trab\_Den\_T4 | 263.771 | 19.329 | 188.678 | 14.110 | 0.0104 |

## Table 7a

Results for Least Square means ± standard error for variables by age at diagnosis adjusting for age and BMI.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (> 20 yrs) | SE (> 20 yrs) | Mean (< 20 yrs) | SE (< 20 yrs) | P Value |
| BMD1.3 | 0.658 | 0.037 | 0.635 | 0.028 | 0.661 |
| BMDLumbarTotal | 1.007 | 0.043 | 0.959 | 0.031 | 0.427 |
| BMDNeck | 0.720 | 0.033 | 0.663 | 0.023 | 0.203 |
| BMDTotalHip | 0.875 | 0.042 | 0.782 | 0.029 | 0.107 |
| BSI\_Crt\_R4 | 33.287 | 2.446 | 23.498 | 1.858 | 0.00982 |
| BSI\_Crt\_T4 | 92.575 | 9.192 | 59.784 | 6.730 | 0.0165 |
| BSI\_R4 | 31.417 | 2.380 | 21.013 | 1.808 | 0.00548 |
| BSI\_SubCrt\_R4 | 30.504 | 3.838 | 25.561 | 2.915 | 0.367 |
| BSI\_SubCrt\_T4 | 50.467 | 5.602 | 37.248 | 4.102 | 0.0987 |
| BSI\_T4 | 89.595 | 9.151 | 57.231 | 6.700 | 0.0173 |
| BSI\_Trab\_R4 | 8.652 | 1.032 | 4.542 | 0.784 | 0.0101 |
| BSI\_Trab\_T4 | 49.424 | 5.287 | 30.208 | 3.871 | 0.0148 |
| CRT\_A\_R4 | 290.583 | 26.375 | 339.071 | 20.033 | 0.203 |
| Crt\_A\_T38 | 255.272 | 11.036 | 236.223 | 8.080 | 0.22 |
| Crt\_A\_T4 | 886.874 | 47.796 | 1067.811 | 34.994 | 0.0116 |
| Crt\_A\_T66 | 247.770 | 10.986 | 225.748 | 8.043 | 0.157 |
| CRT\_Den\_R33 | 1206.351 | 13.649 | 1171.960 | 10.367 | 0.0868 |
| Crt\_Den\_T38 | 1183.968 | 7.976 | 1163.246 | 5.840 | 0.071 |
| Crt\_Den\_T4 | 320.688 | 17.119 | 234.567 | 12.534 | 0.00144 |
| Crt\_Den\_T66 | 1121.561 | 8.061 | 1106.517 | 5.902 | 0.186 |
| CRT\_THK\_R33 | 2.982 | 0.201 | 2.682 | 0.153 | 0.298 |
| Crt\_thk\_T38 | 5.234 | 0.218 | 4.470 | 0.160 | 0.0182 |
| Crt\_thk\_T66 | 3.506 | 0.199 | 2.944 | 0.146 | 0.0512 |
| CrtDen\_R4 | 345.616 | 23.197 | 264.397 | 17.619 | 0.0213 |
| EndoC\_R33 | 14.327 | 1.583 | 18.238 | 1.202 | 0.0925 |
| EndoC\_T38 | 32.210 | 1.703 | 39.109 | 1.247 | 0.00749 |
| EndoC\_T66 | 60.532 | 2.563 | 67.831 | 1.876 | 0.0495 |
| Imax\_Imin\_RADIUS | 1.262 | 0.088 | 1.364 | 0.074 | 0.434 |
| Imax\_Imin\_TIB\_38 | 1.727 | 0.148 | 1.683 | 0.108 | 0.83 |
| Imax\_Imin\_TIB\_66 | 1.488 | 0.177 | 1.609 | 0.130 | 0.624 |
| Imax\_RADIUS | 744.485 | 87.380 | 854.657 | 73.239 | 0.394 |
| Imax\_TIB\_38 | 12053.044 | 907.605 | 12520.043 | 664.499 | 0.71 |
| Imax\_TIB\_66 | 22597.796 | 1237.977 | 23488.116 | 906.379 | 0.603 |
| Imin\_RADIUS | 585.266 | 59.497 | 635.899 | 49.868 | 0.563 |
| Imin\_TIB\_38 | 7154.064 | 687.780 | 7795.317 | 503.555 | 0.502 |
| Imin\_TIB\_66 | 15387.247 | 1794.477 | 15753.885 | 1313.818 | 0.882 |
| LengthR | 240.961 | 5.777 | 250.168 | 4.388 | 0.267 |
| LengthT | 378.667 | 9.953 | 380.533 | 7.287 | 0.892 |
| PeriC\_R33 | 33.066 | 0.927 | 35.089 | 0.704 | 0.134 |
| PeriC\_t38 | 65.098 | 1.237 | 67.194 | 0.906 | 0.228 |
| PeriC\_t66 | 82.560 | 1.831 | 86.329 | 1.340 | 0.146 |
| SSI\_R33 | 199.729 | 16.002 | 232.615 | 12.154 | 0.157 |
| SSI\_T38 | 1480.947 | 78.264 | 1512.404 | 57.301 | 0.771 |
| SSI\_T66 | 2445.024 | 131.684 | 2447.112 | 96.412 | 0.991 |
| TBS.L1L4 | 1.366 | 0.037 | 1.327 | 0.026 | 0.442 |
| Tot\_A\_R4 | 269.892 | 26.366 | 315.069 | 20.026 | 0.234 |
| Tot\_A\_T4 | 849.190 | 47.825 | 1039.361 | 35.015 | 0.00849 |
| Tot\_Den\_R4 | 349.629 | 24.848 | 259.596 | 18.873 | 0.0177 |
| Tot\_Den\_T4 | 321.978 | 17.681 | 232.687 | 12.945 | 0.00139 |
| TRAB\_A\_R4 | 177.046 | 23.614 | 219.202 | 17.936 | 0.216 |
| Trab\_A\_T4 | 676.760 | 43.267 | 855.150 | 31.678 | 0.00667 |
| Trab\_den\_R4 | 215.150 | 14.734 | 140.461 | 11.191 | 0.00177 |
| Trab\_Den\_T4 | 267.247 | 15.319 | 186.592 | 11.216 | <0.001 |

## Table 7b

Results for Least Square means ± standard error for variables by age at diagnosis adjusting for age, BMI, and radius length.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (> 20 yrs) | SE (> 20 yrs) | Mean (< 20 yrs) | SE (< 20 yrs) | P Value |
| BSI\_Crt\_R4 | 34.097 | 2.420 | 22.978 | 1.825 | 0.00431 |
| BSI\_R4 | 32.037 | 2.413 | 20.614 | 1.821 | 0.00347 |
| BSI\_SubCrt\_R4 | 31.540 | 3.881 | 24.895 | 2.928 | 0.24 |
| BSI\_Trab\_R4 | 8.727 | 1.083 | 4.494 | 0.817 | 0.0124 |
| CRT\_A\_R4 | 298.207 | 26.499 | 334.170 | 19.992 | 0.348 |
| CRT\_Den\_R33 | 1207.720 | 14.289 | 1171.080 | 10.780 | 0.0852 |
| CRT\_THK\_R33 | 3.006 | 0.211 | 2.667 | 0.159 | 0.268 |
| CrtDen\_R4 | 347.301 | 24.347 | 263.313 | 18.368 | 0.0247 |
| EndoC\_R33 | 14.579 | 1.643 | 18.076 | 1.240 | 0.148 |
| Imax\_Imin\_RADIUS | 1.270 | 0.092 | 1.359 | 0.077 | 0.517 |
| Imax\_RADIUS | 779.581 | 79.335 | 828.335 | 66.255 | 0.678 |
| Imin\_RADIUS | 609.604 | 53.679 | 617.645 | 44.829 | 0.919 |
| PeriC\_R33 | 33.464 | 0.875 | 34.833 | 0.660 | 0.281 |
| SSI\_R33 | 206.073 | 15.372 | 228.537 | 11.597 | 0.313 |
| Tot\_A\_R4 | 275.715 | 27.022 | 311.326 | 20.387 | 0.362 |
| Tot\_Den\_R4 | 350.888 | 26.118 | 258.786 | 19.704 | 0.0221 |
| TRAB\_A\_R4 | 181.060 | 24.471 | 216.622 | 18.462 | 0.316 |
| Trab\_den\_R4 | 213.605 | 15.417 | 141.454 | 11.631 | 0.00377 |

## Table 7c

Results for Least Square means ± standard error for variables by age at diagnosis adjusting for age, BMI, and tibia length.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Mean (> 20 yrs) | SE (> 20 yrs) | Mean (< 20 yrs) | SE (< 20 yrs) | P Value |
| BSI\_Crt\_T4 | 92.856 | 9.108 | 59.616 | 6.668 | 0.0149 |
| BSI\_SubCrt\_T4 | 50.809 | 4.908 | 37.043 | 3.593 | 0.0535 |
| BSI\_T4 | 89.863 | 9.093 | 57.070 | 6.657 | 0.0159 |
| BSI\_Trab\_T4 | 49.481 | 5.403 | 30.174 | 3.956 | 0.0168 |
| Crt\_A\_T38 | 256.042 | 9.102 | 235.762 | 6.663 | 0.118 |
| Crt\_A\_T4 | 885.681 | 47.927 | 1068.528 | 35.086 | 0.0114 |
| Crt\_A\_T66 | 247.933 | 11.185 | 225.651 | 8.188 | 0.16 |
| Crt\_Den\_T38 | 1184.201 | 7.928 | 1163.106 | 5.804 | 0.0657 |
| Crt\_Den\_T4 | 321.381 | 16.489 | 234.152 | 12.071 | 0.001 |
| Crt\_Den\_T66 | 1121.552 | 8.273 | 1106.522 | 6.056 | 0.198 |
| Crt\_thk\_T38 | 5.250 | 0.178 | 4.460 | 0.130 | 0.00408 |
| Crt\_thk\_T66 | 3.502 | 0.202 | 2.946 | 0.148 | 0.0574 |
| EndoC\_T38 | 32.145 | 1.653 | 39.148 | 1.210 | 0.00578 |
| EndoC\_T66 | 60.680 | 2.286 | 67.742 | 1.674 | 0.0353 |
| Imax\_Imin\_TIB\_38 | 1.728 | 0.151 | 1.683 | 0.111 | 0.828 |
| Imax\_Imin\_TIB\_66 | 1.481 | 0.170 | 1.613 | 0.124 | 0.575 |
| Imax\_TIB\_38 | 12098.435 | 842.337 | 12492.809 | 616.644 | 0.735 |
| Imax\_TIB\_66 | 22662.420 | 1137.436 | 23449.341 | 832.674 | 0.617 |
| Imin\_TIB\_38 | 7174.823 | 682.054 | 7782.862 | 499.307 | 0.521 |
| Imin\_TIB\_66 | 15498.317 | 1563.622 | 15687.243 | 1144.670 | 0.93 |
| PeriC\_t38 | 65.131 | 1.236 | 67.174 | 0.905 | 0.24 |
| PeriC\_t66 | 82.687 | 1.514 | 86.252 | 1.108 | 0.1 |
| SSI\_T38 | 1483.883 | 76.094 | 1510.642 | 55.705 | 0.799 |
| SSI\_T66 | 2453.697 | 111.766 | 2441.909 | 81.820 | 0.939 |
| Tot\_A\_T4 | 847.844 | 47.646 | 1040.168 | 34.880 | 0.008 |
| Tot\_Den\_T4 | 322.672 | 17.095 | 232.270 | 12.514 | 0.001 |
| Trab\_A\_T4 | 675.359 | 42.676 | 855.990 | 31.242 | 0.00581 |
| Trab\_Den\_T4 | 267.566 | 15.471 | 186.400 | 11.326 | 0.00108 |