

Supplementary Material

Supplemental Table 1: Comparison of Hr-pQCT parameters between participants with T2D and without diabetes. Unadjusted and adjusted means are compared in independent sample t-tests and linear regression models adjusting for age, sex, and BMI, respectively. Statistically significant p-values are in bold.

	T2D (n=38)	No T2D (n=37)	T2D vs. no T2D		T2D vs. no T2D	
	Mean \pm SD	Mean \pm SD	Difference (CI)	P-value	Adjusted Difference (CI)	P-value
Ct.Po, %	8.65 \pm 4.50	8.45 \pm 3.30	0.20 (-1.62, 2.02)	0.827	0.70 (-1.07, 2.47)	0.432
Ct.Po.V, mm ³	99.7 \pm 53.2	93.1 \pm 40.4	6.61 (-15.2, 28.4)	0.547	8.37 (-13.8, 30.6)	0.455
Ct.Po.Dm, μ m	206 \pm 30.6	196 \pm 21.9	10.2 (-2.11, 22.5)	0.103	14.6 (2.70, 26.5)	0.017
Ct.Po.Dm.SD, μ m	95.2 \pm 19.4	89.1 \pm 14.3	6.12 (-1.74, 14.0)	0.125	8.73 (0.79, 16.7)	0.032
Ct.Th, mm	1.36 \pm 0.28	1.26 \pm 0.22	0.10 (-0.02, 0.21)	0.101	0.08 (-0.04, 0.19)	0.191
Ct.BMD, mg HA/cm ³	845 \pm 79.1	840 \pm 74.2	4.22 (-31.1, 39.5)	0.812	-2.84 (-37.5, 31.8)	0.871

Supplemental Table 2: Comparison of Hr-pQCT parameters between participants with and without MVD. Unadjusted and adjusted means are compared in independent sample t-tests and linear regression models adjusting for T2D, age, sex, and BMI, respectively. Statistically significant P-values are in bold.

	MVD (n=30)	No MVD (n=45)	MVD vs. no MVD		MVD vs. no MVD	
	Mean \pm SD	Mean \pm SD	Difference (CI)	P-value	Adjusted Difference (CI)	P-value
Ct.Po, %	9.98 \pm 5.19	7.60 \pm 2.43	2.37 (0.60, 4.15)	0.025	2.25 (0.53, 3.97)	0.011
Ct.Po.V, mm ³	112.6 \pm 60.9	85.6 \pm 31.6	27.0 (5.63, 48.4)	0.031	24.2 (2.32, 46.1)	0.031
Ct.Po.Dm, μ m	205 \pm 31.2	199 \pm 23.9	5.54 (-7.16, 18.3)	0.387	1.22 (-10.9, 13.4)	0.841
Ct.Po.Dm.SD, μ m	93.5 \pm 20.5	91.3 \pm 14.8	2.28 (-5.85, 10.4)	0.578	-0.36 (-8.46, 7.74)	0.929
Ct.Th, mm	1.29 \pm 0.25	1.32 \pm 0.26	-0.02 (-0.14, 0.10)	0.693	-0.06 (-0.17, 0.06)	0.309
Ct.BMD, mg HA/cm ³	817 \pm 93.5	859 \pm 57.2	-42.2 (-76.8, -7.49)	0.033	-43.6 (-77.4, -9.81)	0.012

Supplemental Table 3: Comparison of DCE-MRI vessel metrics between participants with T2D and without diabetes. Unadjusted and adjusted means are compared in independent sample t-tests and linear regression models adjusting for age, sex, and BMI, respectively. Statistically significant p-values are in bold. *DCE-MRI of one control participant could not be evaluated due to motion artifacts.

	T2D (n=38)	No T2D (n=37)*	T2D vs. no T2D		T2D vs. no T2D	
	Mean \pm SD	Mean \pm SD	Difference (CI)	P-value	Adjusted Difference (CI)	P-value
Vessel density, mm ⁻³	0.25 \pm 0.20	0.33 \pm 0.20	-0.08 (-0.18, 0.01)	0.073	-0.08 (-0.18, 0.02)	0.128
Avg. vessel volume, mm ³	0.08 \pm 0.04	0.07 \pm 0.02	0.02 (0.001, 0.03)	0.034	0.02 (0.004, 0.04)	0.017
Avg. vessel diameter, μ m	272 \pm 34.1	258 \pm 23.0	13.7 (0.11, 27.2)	0.046	15.4 (0.42, 30.4)	0.044
Vessel-pore ratio, %	35.5 \pm 30.3	39.3 \pm 23.9	-3.73 (-16.4, 8.96)	0.560	-4.90 (-18.5, 8.73)	0.476

Supplemental Table 4: Comparison of DCE-MRI vessel metrics between participants with and without MVD. Unadjusted and adjusted means are compared in independent sample t-tests and linear regression models adjusting for T2D, age, sex, and BMI, respectively. Statistically significant P-values are in bold. *DCE-MRI of one control participant without MVD could not be evaluated due to motion artifacts.

	MVD (n=30)	No MVD (n=45)*	MVD vs. no MVD		MVD vs. no MVD	
	Mean ± SD	Mean ± SD	Difference (CI)	P-value	Adjusted Difference (CI)	P-value
Vessel density, mm ⁻³	0.33 ± 0.22	0.26 ± 0.19	0.07 (-0.03, 0.16)	0.172	0.11 (0.01, 0.21)	0.033
Avg. vessel volume, mm ³	0.07 ± 0.02	0.08 ± 0.04	-0.01 (-0.03, 0.005)	0.130	-0.02 (-0.04, -0.004)	0.014
Avg. vessel diameter, μm	261 ± 23.1	269 ± 33.5	-7.83 (-21.9, 6.22)	0.270	-14.6 (-29.1, -0.11)	0.048
Vessel-pore ratio, %	40.5 ± 29.4	35.2 ± 25.8	5.30 (-7.59, 18.2)	0.415	8.70 (-4.68, 22.1)	0.199

Supplemental Table 5: Comparison of cortical bone parameters/vessel metrics between participants with and without MVD in T2D subgroup. Means are compared in t-tests. Adjusted means are calculated in linear regression adjusting for age, sex, and BMI. Statistically significant P-values are in bold.

	MVD (n=17)	No MVD (n=21)	MVD vs. no MVD		MVD vs. no MVD	
	Mean ± SD	Mean ± SD	Difference (CI)	P-value	Adjusted Difference (CI)	P-value
Hr-pQCT						
Ct.Po, %	9.36 ± 5.69	7.77 ± 2.20	1.59 (-1.38, 4.56)	0.249	1.31 (-1.44, 4.05)	0.340
Ct.Po.V, mm ³	104.9 ± 64.4	93.2 ± 35.8	11.7 (-23.8, 47.1)	0.510	11.2 (-24.0, 46.4)	0.522
Ct.Po.Dm, μm	207 ± 35.3	205 ± 24.6	2.61 (-17.9, 23.1)	0.798	0.04 (-18.3, 18.4)	0.996
Ct.Po.Dm.SD, μm	95.8 ± 22.3	94.5 ± 15.7	1.30 (-11.7, 14.3)	0.840	0.03 (-12.3, 12.3)	0.996
Ct.Th, mm	1.32 ± 0.26	1.40 ± 0.30	-0.07 (-0.26, 0.11)	0.421	-0.05 (-0.23, 0.13)	0.547
Ct.BMD, mg HA/cm ³	830 ± 97.4	863 ± 44.5	-32.7 (-84.6, 19.2)	0.181	-27.9 (-77.7, 21.9)	0.263
DCE-MRI						
Vessel density, mm ⁻³	0.29 ± 0.22	0.20 ± 0.18	0.10 (-0.03, 0.23)	0.141	0.10 (-0.04, 0.23)	0.143
Avg. vessel volume, mm ³	0.07 ± 0.03	0.10 ± 0.05	-0.02 (-0.049, 0.003)	0.111	-0.02 (-0.048, 0.003)	0.086
Avg. vessel diameter, μm	265 ± 25.0	280 ± 42.0	-15.2 (-37.45, 7.08)	0.175	-15.2 (-37.71, 7.33)	0.179
Vessel-pore ratio, %	41.7 ± 33.6	27.9 ± 24.6	13.8 (-5.96, 33.64)	0.165	14.1 (-5.38, 33.66)	0.150